

SEQUENCE LISTING

<110> Ye, Rick
 Bedzyk, Laura
 Wang, Tao

<120> NATURAL PROMOTERS FOR GENE EXPRESSION IN *BACILLUS* SPECIES

<130> CL1686 US NA
 <160> 81

<170> Microsoft 97

<210> 1
 <211> 3687
 <212> DNA
 <213> *Bacillus subtilis*

<400> 1		
atgaagaaaa agaaaaggag tccgttgtt aggagattga attatttctc tcctatcgaa	60	
. caccattcaa ataaaacatag ccaaactacc cgcgaggatc gcgattggga gaatgtatac	120	
agaaaacagat ggcagtacac gaaagtgcgtt cgctccaccc acggcgtcaa ctgtacaggg	180	
tcttgcagct ggaatattta tgtgaaaaac ggaatagtca cgtggaaagg gcaaaatttg	240	
aattatccat caacaggccc ggatatgcct gatttgaac cgagaggctg cccgcggggg	300	
gccagtttt catggatatat ctacagccc ctccgtgtga aatatccata cgtgcgcggt	360	
gtgctgatca atttgcggcg ggaggcattt cagacgcattt aaaaatccatt ggaagcctgg	420	
aaatcgatcg tcgaaaaccc tgaaaaagcg aagtgcctata aacaggcgag agggaaaaggc	480	
ggttttgcgc ggcgtgaatg gccggagggtg ctgaagctga tttcagcctc tctgctgtat	540	
acagtgtatga aatacggggcc tgaccgaaac gtcgggtttt ctccgattcc ggccatgtcc	600	
atgatcagcc acgcatttgcggc ctccgggtttt atgtgcgtt aaatccattt ggttttgcgc	660	
ttttatgact ggtatgcggc tcttccttca gcatccccgc aaatttgggg tgaccagacg	720	
gacgttccgg aaaggcgtga ttggtaaat tccggctata ttatcacatg gggctccaaac	780	
gttccgtttaa cgagaacgc tgacgcgcattt ttttggcg aggcccgtt aaaaaggcgt	840	
aaggcattt cgatcgtcc agatttgcg gaatcctcaa agttcgcggta tgactggctg	900	
agtattcgcc aagggactga cggggcgctt gcgatggcga tgggtcacgt tattctgcag	960	
gaattttacg tgaaccaaga aactgaacgt ttatttgatg acgcgaagca atacaactgat	1020	
tttccatttc tcgtcactct gtcaaaaagaa aatggcgat acacagcgcc acggtttctg	1080	
catgcgaagg acatcggggcg gaagacaaag catgatcgtt ggaagcctgc ggtttggat	1140	
gaacagacaa gttcatttgc catacccca gggacaatgg gctcgcgtg ggacggggcag	1200	
cagaaaatggc acctgcacat gattgtgaa gaaaccgggg aaccgattga accccgttcc	1260	
tctgtgttgg gaatagagga cggaaatcgcc acgggtgcgc tcccgtattt ttcaaatgac	1320	
ggaaacaaag tgctcgagcg ggatcttctt attaaaaaaa tgaacctgaa cggtaagaa	1380	
acgtacatca cgaccgtgtt tgacttgata ctggcttaact acggcggtgaa cggggccatc	1440	
ggcgaacgat cggctgttcc ctatgtgac ctttgcgtt ttacgcctgc ctggcagggaa	1500	
caaatacgatc gaatcaaaaa agaagctgtc gttaagattt ccagagatgg tgcccaaaat	1560	
gcgcgtatca cagacggccg gtccatgattt atcgttagggg cccgcattaa ccactgggtc	1620	
aactccgaca cgatctaccg agcgtgttta aatcttgcgtt tacttgcgtt cggccaaaggc	1680	
gttaacggcg gaggtgggc ccattacgtt gggcaggaaa agctccgacc tgctgaaggg	1740	
tggcagacga ttgcaactgc aaaggactgg gaaggcggtc ccaagctgca aatggcacc	1800	
tcattttctt actttgcgac agatcgtgg cgtttatgagg accagccatc cagtgttgc	1860	
gcattaccgtt ttgctgttcc atcccgcttcc aaggcaccacg ctgattacaa ttttgcgttcc	1920	
ggcgccgtt ggtggcttcc gtcttacccg actttcaatc aaaatggcat cgtatctgtat	1980	
aaagaagctg aaaaaggcagg ggcagcaaca ccttgcgttcc taggtgcgtt cgtggccatc	2040	
cagctccaaag agaaaaactt gaaattcggtt atttgcgttcc ctttgcgttcc aatggcacc	2100	
ccaaaggaaatc tctttgtatg gggggcaat ctgtatcttca gctcaggaaa agggcatgaa	2160	
tattttctca agcattttgtt ggggacaacg aacgggtttaa tgaatgcgtt cagcgacacg	2220	
atccggccatc aagaaatcaa atggcggggag caggcgccgg aaggaaaatc cgtacttattt	2280	
atcaatcttgcgtt ggcgggttcc ggcgtgttcc ccttgcgttcc cgtatctgtat	2340	

gcgacatgg	ataaaaaaca	cgatctcagc	agcacagata	tgcatccgtt	cattcatcca	2400
tttgcctcg	cgatctcg	tccgtggaa	tcgaagtcag	actggat	tttcaaggcg	2460
ctgtcaaaag	ccgttccga	tctggcagaa	gaagtcgata	tggagccgt	gaaagaagt	2520
gttgcacac	cgctgctca	cgacaccatg	caggaattgg	cccagccatt	cgccaaaatc	2580
aatgactgga	gcaaaggcga	atgtgaagcc	attccggaa	aaacatgcc	gaacatccaa	2640
gtcggtgaa	gggattacaa	acacatttt	cataaaatga	ctgacttgg	tccgaacgtt	2700
gctttaaagc	cgagcggAAC	aaaaggatg	agctggtcaa	tagccgatga	atatgaatca	2760
ctcaaacaga	gactgggaga	aatcacctcg	gacagcgtgg	caaaggatg	tccaaatata	2820
agtgaagcaa	agcaggctgc	agaagcgatt	ttaaccctat	catccacttc	aatggaaag	2880
gtcgcatgaa	aaggatgggaa	atcaacttgg	aacatcacga	acctgaagct	gaaagacgt	2940
gcggaaagaac	gcgaggaaga	atgc	ttcgaacaaa	ttacagccc	gcccggaaacg	3000
gtgatcacgt	ctccagcg	taccggct	gaaaaaggag	ggcgcaggta	ttcgccgtt	3060
acaacgaatg	ttgaaaaatt	aattccgtgg	cggacgctga	caggcagaca	atcctattat	3120
gtcgatcatg	aactgtatgat	ggaattcggt	gaaacatgg	cgacattcaa	accgatcc	3180
cagcatcgcc	cgtttctgag	caaaccgc	gatcaagagg	gaaaagaaat	cgtcctcaat	3240
tatttgcgc	cgcataataa	atggctgtc	cacagcatgt	attttgcattc	tctgcccgt	3300
ctgacgcgt	tccgcggcgg	gccgaccgt	tggatgata	aagatgtgc	agaggacacg	3360
gataatcaaag	acaacgattt	gattgaatgc	ttcaaccgaa	acggcggt	cgtcgcgaga	3420
gccgtttgt	ctcatcgat	tcctaaagga	atggcggtt	tgcaccatgc	ccaggacacg	3480
cacatcaacg	tgcccggcac	aaagctgacg	aataaccgcg	gaggcacc	taacagcccg	3540
acaaggattt	acgtcaagcc	gacacagatg	atcggtggct	acgcccagct	cagctacggc	3600
ttaattatt	acggtccaa	ggggaaatcg	cgcgacactg	acgtcgat	ccgcaagctg	3660
aaggaggtcg	attggcttga	agattaa				3687

<210> 2'
 <211> 1464
 <212> DNA
 <213> *Bacillus subtilis*

<400> 2						
ttgaagatta	aagcgcaa	atcgatggc	atgaaacttgg	ataaaatgc	cggctgcac	60
acgtgcacg	tcacccgt	aaacacgt	acaaaccgtt	ccgggtcg	atataatgtac	120
ttcaataatg	tagaaacaaa	gccgggc	ggttacccg	agcaatggg	ggaccaggac	180
aaatataaag	gcggctgg	attgaaaaaa	ggaaagctcg	agctgaaatc	gggctcgaaa	240
accaatccgc	ttgcaggc	tttctataat	ccgaatc	cgtcaattg	tgattactat	300
gaaccttgg	actatgat	tgaaacat	acgaacagcc	cgcagaaaaa	acaccagccg	360
gtacacgc	cgaaatcg	cttgacggg	gatttcatg	atatcgat	gggaccgaa	420
tgggaggacg	atctcg	cggccac	acgggactt	aagatccaa	cgtacaaaag	480
atggaggaat	cgatcaaa	agaattcg	gacgtt	tgatgtatt	gccccgtatt	540
tgcgagca	gcatcaac	ggcatcg	tcatccgt	catccggc	catgtacaaa	600
cgcgaggagg	acggcatt	gttgtgg	caaaacgc	gccgtt	gagatattgc	660
gtctcatct	gtcctataa	aaaagtct	ttaactgg	aaacgaacaa	agcggaaaaa	720
tgcacactt	gcttccgc	tttggagg	ggactg	ccatctg	tgagacgt	780
gttggcagaa	tccgctac	cggcgt	ctatatg	cg	ggaggaagcg	840
gcatctgtt	aaaatgaaa	ggatctct	cattccaa	tggacgtt	tcttgatcc	900
aatgatctt	aggttgc	actgg	aaacaa	gaacaaggc	ttccggct	960
gcccgcac	aatcacc	ctataaaat	atcattg	ggaagatcg	gctgccc	1020
catcctg	accgcac	gccaatgg	ttgttac	cggcgt	cccgattat	1080
aatctctt	aaggaaa	cagccgg	acggcgg	atattttc	ggctatcg	1140
caaatgaga	tcccgat	ttatgg	cagctt	cagccgg	tacggat	1200
attcggtca	cattaaagaa	aatgtct	atgcgc	agt	atagagagc	1260
aataaaatca	tcgatccgg	actgatct	actgtcgg	taacaga	gcaaattgaa	1320
gatatgtatc	ggctgcttgc	gattgcca	ttatgatg	gctt	tgat	1380
catcgagaag	aagtatcaga	tttatacg	gaaacaagg	gctgcgg	cttcat	1440
ggcggcc	gctcctgtt	ctaa				1464

<210> 3
 <211> 555
 <212> DNA
 <213> *Bacillus subtilis*

<400> 3

atgaacacca	cagaccggca	aatcacgttc	tctgctctt	cctgtcttct	ctcttatccg	60
gatgaagagt	ggagagccga	gcttcccgt	tggaaggctc	ttatccaaga	aatcgccaac	120
cggcaatcc	gggagaagct	gctgcactt	ttcgagacgt	cagccagcta	ttctccgaa	180
gcgctgattg	aacactatgt	ctatacattc	gacttcggga	aaaaaaacaaa	tatgtatgtc	240
acctacttta	actcaggcga	gcaaaggaa	cgcggcattt	aattgctgca	tttaaaaaaac	300
acatacggac	aatccggttt	cctgcccaca	gagaaagagc	tgcctgatta	tctgcccgtg	360
atgctgaat	ttgctgcggc	tgcagaaaatt	gaagcagcga	gaagcgtgtt	tgagaaaatat	420
ctgtccaatg	tgagggagct	ggcatcccg	ctcgaaaaaaa	atgacagtat	atacgctgaa	480
ctgctgcacg	tgctgctggc	cgcgcttgaa	aacattggcg	tacgtgaaag	cgttgaaggg	540
gctgttcagg	catga					555

<210> 4

<211> 672

<212> DNA

<213> *Bacillus subtilis*

<400> 4

atgagcgggc	agatcctctg	gggtattatg	ccatacattt	tattgacaat	ctttatccgc	60
ggccatattt	accgctatca	gcatgacca	tttggcttga	cggcgaaatc	aagcgagctg	120
ttagaaaaga	aaaaaacttgc	ggctggcagc	acacttttc	actggggact	gctgtgcgtt	180
gtcggcgggc	atgtcatggg	gattctgatc	ccagaaggcg	tgtatgctt	ccttggcatt	240
tcagagcata	tgtatcacaa	aatggcgatt	ggcgctggct	tgccggcggg	cattgcggca	300
tgtaccggac	ttgtcatacct	gacgtacaga	aggctgtttt	acaaaagaat	ccgcaaaacg	360
agctcgccat	ccgatatacct	tacgctcctt	ctgctgtgt	tcatatgtct	gtcaggcggt	420
gcggccacgt	ttctcaacat	tgattcgaaa	ggatttgatt	accggaccac	agtcggggcc	480
tgggtcaggg	aaatcgttt	gttcaggcct	gacgcctt	tgatggagag	tgtcccgtt	540
tgggttaagt	ttcatattgt	gataggatac	gtcgttttta	tcctgtggcc	gtttacgaga	600
ttggttcatg	tgttcagtct	gccgctcaag	tatctgaccc	gcagctacgt	tgtatatccg	660
aaacgctcgt	ga					672

<210> 5

<211> 834

<212> DNA

<213> *Bacillus subtilis*

<400> 5

atgaaaatca	gtatgcaaaa	agcagatttt	tggaaaaaaag	cagcgatctc	attacttgtt	60
ttcaccatgt	tttttaccct	gatgatgagc	gaaacggttt	ttgcggcggg	actgaataaa	120
gatcaaaaagc	gccgggcccga	acagctgaca	agtatctttt	aaaacggcac	aacggagatc	180
caatatggat	attagagcg	attggatgac	gggcgaggct	atacatgcgg	acgggcaggc	240
tttacaacgg	ctaccgggg	tgcattggaa	gtatgtggaa	tatacacaaa	ggcagttccg	300
aataacaac	tgaaaaagta	tctgcctgaa	ttgcggcgtc	tggccaagga	agaaagcgat	360
gatacaagca	atctcaaggg	attcgcttct	gcctggaaagt	cgcttgcaaa	tgataagggaa	420
tttcggcccg	ctcaagacaa	agtaaatgac	catttgattt	atcagcctgc	catgaaacga	480
tcggataatg	ccggactaaa	aacagcattt	gcaagagctg	tgatgtacga	tacggttatt	540
cagcatggcg	atggtgatga	ccctgactt	ttttatgcct	tgattaaacg	tacgaacaaa	600
aaagcggcccg	gatcacctaa	agacggaata	gacgagaaga	agtggttgaa	taaattcttgc	660
gacgtacgt	atgacgatct	gatgaatccg	gccaatcatg	acacccgtga	cgaatggaga	720
gaatcagttg	cccgtgttga	cgtgcttcgc	tctatcgcca	aggagaacaa	ctataatctt	780
aacggaccga	ttcatgttgc	ttcaaaacgag	tacggttaatt	ttgtaatcaa	ataaa	834

<210> 6

<211> 753

<212> DNA

<213> *Bacillus subtilis*

<400> 6
 atggcggaaac cactatcaaa aggggaaatt ttggtgaaaa aagtattgat tgcagggtgca 60
 gtaggaacag cagttctttt cgaaaccctt tcatacggtt taccagggtt acccgccgca 120
 gacgctcaag tcgcaaaagc agcatccgag ctgcctaacg gaatccggg ccgtgtctac 180
 ctgaacagta cgggcgcgt tttacagct aaaatcggtc ttccgtaaac tgtcaaaaac 240
 aacgactcggt tctctactcc ctatattttt tctggctttt gggcaacaag cggaactgaa 300
 gccgatatacg ggcttcagta cagcaacaa tacaacgtct ggaagccct catgaagggt 360
 gggtccaaaa atgaagaaac gtacatcgaa ggaaaagaca aattccacata caataaaggc 420
 ttccgcctg gaagcacagt ccaaatacgaa atctataaaa atttaagcgg caatacgcgc 480
 atgacccttt ggggaacgaa caatgacggc tacaccggac ggattatcac agaaattcaa 540
 ggaaccaaca tcggcacgt ttcaaaatgg aaaacacttg ctaccgcgc tgttcgtat 600
 gaaagccagc gtgatgcgt caaagaacc ttttcgaccc tttaacaa catcaactatc 660
 gacaataaaag ccgtcactcc tttttttttt acacaggatt tcgcaaagggt ttcagttgca 720
 gggaaataacg ttacgatctc tgtaataaa taa 753

<210> 7
 <211> 570
 <212> DNA
 <213> *Bacillus subtilis*

<400> 7
 atgaactata acatcagagg agaaaatattt gaagtgacac ccgcgttaaa ggatcatgtc 60
 gagaggaaga tcggcaagct ggagcgctat ttggaccata gcgtggatgc tgatgtgaac 120
 gtcaacttga agtttacaa tgacaaggag tctaagggtt aggttacgt tccgatgaca 180
 gatctggcgc ttccgtccga ggtgcataac gaggatatgt acaacgcaat tgatctcgca 240
 acaaacaaac tggAACGTCA aatccgttaag cataaaacga aagtaaaccg taaattccgt 300
 gagcagggct ctccaaaata ttatggca aacggcttg gctctgatac agatattgcg 360
 gttcaggatg acatagaaga ggaggagagc ttggacatcg tccgtcagaa acgctttaat 420
 tttaaagccga tggatagtga agaagcgatc ttgcaaatga atatgctcgg ccataatttc 480
 ttgttttca caaatgcggg aacaacacctt acaaattgtcg tgcgttccgg aaatgacggg 540
 aaatatggct taattgaacc gactgaataaa 570

<210> 8
 <211> 477
 <212> DNA
 <213> *Bacillus subtilis*

<400> 8
 atgactatata gtttccattt atttttctt tattacttta gcaatatttc acctcagaat 60
 ccactgttca aaaaaaattt ttgcacaaa ttgtctcccc aaggctttgg cttttatagt 120
 aaaagcccta cagaagaaaa catttcattt cacacaaaag aaaatttaaa gttacctaatt 180
 gcacttccca ataattttttt tgggataaaa agagaaggaa gagttcaggc aatagaattt 240
 ggcaaaaattt tagagaatat cgtccaaag aattggaaaa cttgtgaaaa caacaactcc 300
 tgcacaaattt tagagaaaca aataaagcctt attaaggta taaaaatga agattatata 360
 catcttagca aaggagaata cctaatatata cgccaaaaac cactctcatg gtattggata 420
 gactttaaacg aaactacctc ttttggaaaga aaggtgctaa aaataaaaaat agtatga 477

<210> 9
 <211> 972
 <212> DNA
 <213> *Bacillus subtilis*

<400> 9
 atgaagatataaataatgtttt agaaggttat attgacacactt ataatccatg gaaaaataca 60
 tatgcactttt ttagaagttt acttggtttcaacattac tagtactattt attcaatagt 120
 actgatattttt tatttagttt tagtgcataat aatgtcacat gtggaaatgtt ctatatccct 180
 accgctttttt gtttgctaa agaataatgtt atcaattttt agattataag atacttaatg 240
 atttttatataat taaaccttagt ggtttaggg tggagaccta gatttacggg tttatccac 300
 tggatattttt gctatagttt tcaaacttca gctttacta tcgatgggtgg agagcaaattt 360
 gcaactgttc tttcttttct tatattaccc ttttccattat tagattcaag gcgaaatcat 420

tggaaatataa agaaaaacaa taatgaatct ttcacaaaga agacagtatt gttttatata 480
 atgacaataa taaaattca agttttatc atttatttaa acgcagctt agagcgattg 540
 aaaaataaaag agtgggcaga aggaacagca atttactatt tctttctga tccgggttt 600
 ggattacctg aatatcaact taacttaatg aatccactac ttgaaagcaa ttttattgtt 660
 gtcatcactt gtttagtaac tatttttag ttgttcttag cagcaagcat aatttcaaat 720
 atcagaataa agagaattgc cttgtttt ggaatattat ttcatattgg gataatattc 780
 agcattggta ttgtaaagtt tggcttgatc atgatatcag cattaattat atatctgcat 840
 cctgtacaac aaaatatcac tatgaattgg tggttcctt tatttaaata tatatatgt 900
 aaaggaaaga gaaatttcaa aagaatagga ggtgaatcag tcaagttct tacaaaattg 960
 ttcataagct aa 972

<210> 10
 <211> 612
 <212> DNA
 <213> *Bacillus subtilis*

<400> 10
 ttgaaaagta aattacttag gctattgatt gtttccatgg taacgatatt ggtttttca 60
 ttagtaggac tctctaagga gtcaagtaca tctgctaaag aaaaccatac attttctgga 120
 gaagattact ttagaggact tttatttga caaggggaag ttggtaaattt aatttcaaac 180
 gatggacc ctaaactcgt aaaagaggca aatagtacag aaggtaaaaa gtttagtaaat 240
 gatgtatc aatttataaa aaaagatcaa ccacaatata tggatgaatt gaaacaatcg 300
 attgacagca aagaccctaa aaaactcatt gaaaatatga ccaaagcaga ccaacttac 360
 caaaaatatg ctaagaaaaa tggaaacgtt aaatactctt ctaataaaatg tactccatct 420
 tggggcttt atgccgtctg ttagcagct ggatattat atgttgggg cgttaacgca 480
 gttgcattac aaacggctgc cgcaataca actgcagtgt ggaaatacgt tgccaaatat 540
 tcctcttcag cttctaataa ttctgatttta gaagcggctg ctgcaaaaac cctaaaattg 600
 attcatcaat aa 612

<210> 11
 <211> 1041
 <212> DNA
 <213> *Bacillus subtilis*

<400> 11
 atgaaggcag caagatggca taacaaaaag gatatccgta ttgaacatat cgaagagcca 60
 aaaacggagc cggaaaaagt aaagatcaa gtcaaatggt gcggcatctg cgaaagtgtat 120
 ttacacgaat atctggcgg cccgatctt attccgggtt acaaaccgca cccattaaaca 180
 aatgaaacgg cacctgtcac aatggggcat gaattctccg gtgaagttgt cgaagtgg 240
 gaaggcggtt aaaattataa agttggagac cgcgtttag tcgagccgat tttgctaca 300
 cacggccacc aaggcgccta caaccttgcgat gaacaaatgg gattcctcg 360
 ggaggcggcg gtttctctga atacgtctc gtggatgaag agctttgtt caaacttct 420
 gatgaattat catatgaaca aggcgcgcgc tttgaacctt ctgcagttgc tctatacgt 480
 gtccgctcaa gcaaactcaa agcaggcgac aaagcggctg tattcggctg cggcccgatc 540
 ggacttcttg tcattgaagc gctgaaggct gccggtgcaa ctgatatttgcgttgc 600
 ctttctcttg aacgcgcagca aaaagctgag gagcttggcg cgatcatcgatcgt 660
 aaaacagacg atgtatgcgc tgagattgca gaacgtacag gaggcggtgt tgacgttagca 720
 ttcgaagtca ctgggttccc agtgggttta cgacaagccca tccagtcac tacaatttgc 780
 ggtgaaacccg tcattggaa aaaggtgctg aaatccatcc gaacgatatc 840
 gtaatcaaag aacgtacagt aaaaggaatt atcggataacc ggcacatctt cccggctgt 900
 ttgtcattaa tgaaagaagg ctatctca ggcgacaaac tcgttaacgaa aaaaatcgta 960
 ctagatgatt tgatcgagga aggcttcggg gcttatttta aagagaaaag ccaagtcaaa 1020
 atccttgcgttta gacctaacta a 1041

<210> 12
 <211> 171
 <212> DNA
 <213> *Bacillus subtilis*

<400> 12
 atggaaaagc tatttaaaga agttaaacta gaggaactcg aaaaccaaaa aggtatgg 60
 ttaggaaaag ctcagtgtgc tgcgttgg ctacaatgtg ctagggcgg tacaatttgt 120
 tgtggcgcg gagctgtgc ttgtcaaaac tatcgtcaat tctgcagata a 171

<210> 13
 <211> 414
 <212> DNA
 <213> *Bacillus subtilis*

<400> 13
 atgaaaagt ggattgtttt atttcttgc ttaatagcag cagccattag tatttcgtt 60
 tatgtttcta caggtgcga aaaacccccc tataatgata taaatttac tcaatataca 120
 aaagaagtag actctaaaaa acctaaattt atttatgtt atgagacaag ttgtccct 180
 tgcgtcaagaaa taaaacctga gttaaatgaa gtaattaaaa aagaaaaagtt aaaagtag 240
 gctttaaata ttgaagaaaa ggaaaattat aacactgaat ttttagataa atataattg 300
 aataaaaactc caacgattct ctattacaaa gatggcaaaag aaaaagatcg gtttagagggc 360
 tataagaatg caagccaaat agaaaagttc tttgataaaaa atggtagatg ataa 414

<210> 14
 <211> 1269
 <212> DNA
 <213> *Bacillus subtilis*

<400> 14
 atgaaaactga gtgatattta tttggaaatta aagaaaaggct atgcccatttc tttattgtat 60
 tcagattgtt cattgttgcgtt taatataatg gaatatgaaa aagatattga tgcgtatgtca 120
 attcaatctt tgggtgcagg ttatgaaaaa tcaagatctc ctacaataac atgcggattt 180
 atagttata acgaaagcaa gagaattaaa aagtgtttaa atagtgtaa agatgattt 240
 aacgagatta ttgttctaga ttcataactcc actgatgata ccgttgatata tattaaatgt 300
 gatgtttctg atgttgcattt taaatatgaa aagtggaaaga atgattttc ctatgttgc 360
 aataaaaatata tagatgtgc tacttccgaa tggattttt ttattgtgc agataattt 420
 tactctaaag aaaacaaagg gaaaatagct aaagtagcta gagtttttgc gttttttct 480
 attgattgtg tagtttagtcc atatataaaaaa gaatataactg gacatctata ttctgatata 540
 cgaagaatgt ttccgcgttca tggtaaaatggt aaatttcattt gggaaatgtca tgaagaacct 600
 atgaattata atcatatgtct accttttaat ttcatgtgc accttaagggt ttaccataat 660
 ggtataatc cttcagagaa taatataaaaaa tcaaaaaacac gaagggatataaaatctcaca 720
 gaagaaatgt taagattggc gcccggaaac cccaaatggt tattttttt cggcagagaa 780
 ctacattttac ttgtataaaga tgaagaagca attgattttc tgaaaaatcc aataaaacaaac 840
 tataaaaaatata ttaatgtatca aagacattttt atagatgttt tagtgctatt atgtacttta 900
 ttattgtcaga gaaataatataa ttgttgcattt acctttatatt tggatataatggaaactgaa 960
 tatccaaatgt gtgttgcattt tgattactttt agatctgcattttt ttttttttgc 1020
 aataaaacttta cttcttttaag caatatgtattt gatggatgtttt ttacagacgaa gagatagatgt 1080
 gctataatataa caacaaaaaaa tcaactttttttaa agaatttttaa taaggctttaa tattcaactc 1140
 gaaaatttttttggg aaagagataaa agaaatataca gggggaaatataa aaaaatgataa tatgaaaaaaa 1200
 gaaaatttttttac aatatcttgc caactcactc cacaatattt aacacgttgc gaaagggat 1260
 gaagttatgtca 1269

<210> 15
 <211> 447
 <212> DNA
 <213> *Bacillus subtilis*

<400> 15
 atgaataacaa gatatgtaaa atcattttttt ttattactgt tttttctctc tttctttggc 60
 acaatggctta gtttattctta cagtggatgc atgcatttca aaccatgtgt tctatgttgg 120
 tatcaaaagaa tatttctata tcctatacctt attatcttac taataggctt attaaaaaaa 180
 gatcttaattt cgtatattttt tggatgtttt ctttcatcaaa ttggattgtat tattgcgttt 240
 tattcattata ttatccact tacacaaaagc aaaatgtcg tatgtgaaat tggaaaccaac 300
 agctgcgcgaa aaatttgcgtt agatgtatcta ggcttttattt cattaccctt aatgagttca 360

gtatgtttg cattgatatt tggtatagga ctgaaattaa ttatcaaaag caagaaatta aaacaaaatc aacatgtata taattga	420 447
<210> 16	
<211> 954	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 16	
atgaaaaaaga tatctttac cttattaatc ttacttctcg cgctgacggc ggcagctgc ggcagaaaa atgaatcaac tgccagcaag gcaagcggca cagcatctga gaagaagaaa attgaataacc ttgataaaaac atatgaagta actgtaccga cagacaaaat tgccattacg ggaagcggtg aatcaatggaa agacgcgaaa ttgcttgacg ttcatccgca aggcgcatt tcattctccg gcaaattccc tgatatgttc aaagacatca ctgataaaggc cgaaccaacc ggagaaaaaaa tggagccaaa tattgaaaag attctgaaa tgaagccaga ttttatcctt gcttcaacaa agtttccgga aaaaacgctg caaaaaatca gcacagcagg cacgacgatc ccagtttctc atatctttc aaacttggaa gaaaacatga tgcttcttc ccagctgact ggaaaagaga aaaaagcaaa gaaaattatt gcagactatg aacaggatct aaaaagaata aaaacaaaac tcaacgataa agcggaaagat tcaaaagcgc ttgtcatcag aatcagacaa ggcaacattt acatttaccc tgaacagggtg tatttcaactt ccacactata cggtgattt ggcctaagg cgccgaacga agttaaaggct gcaaaagcgc aagagctgag ttcatttagaa aaatthaatgt aaatgaaccc ggaccatatt ttctgtccat tttctgtatga tgaaaatgca gacaaacctg atgccttaaa agattttagag aaaaatccaa tctggaaaag ccttaaagca gtcaaagaag accatgtgttca tgtcaactca gtggaccctc tcgcacaagg cggcacagct tggagcaag tccgtttcct gaaagcggct gctgaaaaat tgacacaaaaa cttaa	60 120 180 240 300 360 420 480 540 600 660 720 780 840 900 954
<210> 17	
<211> 1005	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 17	
atgtattcaa aacagtggac acgtatcata ttgattactt ctccatttc tatagcgctg tcacttttc tttcaatcct ttatggggca aagcatctca gcacagatat tgtttttaca tcttttattc atttcgatcc gggaaacaca gaccatcaaa ttatatggca ttcccgatt ccaaggggctg ccggcgctt gctcataggg gcggccctt ctgtttctgg agcgctttag cagggcatta cgcccaattt tttagctcg ccatccattt tgggtgtttc agatggtca gcgtttatca ttacgctttt catgggtctg ctcccgaaat catcttcgat tgaaatgt ataactctt ttatcggtc agcgttagga gcggtgttag tattcggct tgccgcatg atgccaacacg gatttacccc cgtcgacgtc gccatcatcg gcacagtac aagcatgt ctcagcgact tattcggc catgtcgatt ttttcattttt tttctcagga ttcagttt tggtagactg ccagacttca tcaaatggat ccagatttcc tgaagcttgc cgctccgtt ttcctgtttt gcattataat ggcattttt ctcagcaaaa aggttaaccgc tttatcatta ggggacgaca tttctaaaag cctggggcaaa aaaaaaaaaa ccattaaaat catggcgatg ctttccgtca tcattctaac cggcagtgtt gtagcgctgg ccggaaaaat tgcgtttgtc gggttgggtt ttccgcataat caccggatattt ctcgtcggtt ctgattacag caggctgatt ccgtgtttctt gtattttggg cggaatcttt ttaaccctgt gtgatctcgc aaggagattt atcaactatc cgtttggaaac accgatttag gtcgtaaatccattatcgg cgtaccttcc ttcccttatt taattaaacg aaaaggaggg gagaaaaatg gctaa	60 120 180 240 300 360 420 480 540 600 660 720 780 840 900 960 1005
<210> 18	
<211> 1185	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 18	
atggctaaaa aatatgcatt gttcatcgct ttgattcttg ttgtcagctt acgagcgat cattttctgt tcgtcctgtt gagctgttcc caacttttt tcaaattcgac ccgaatccgc agtataaattt ttgctgttc gatttaagac tgccgcgggt tgcgtatgt gctattattt gactcggtt gtcgttgc ggcgtgtt tccaggccat cacgagaaac	60 120 180 240

gggcttgctg	accctggaat	tctcggaatc	aacgcagggg	caggagctgg	cattgttagcg	300
tttatgtct	tattccaagg	ccagaaggaa	gtgacatcca	tagctgcagc	gatgggaatg	360
ccgctcttg	gattgatagg	cgggctcatc	goggcgatcc	tgatttacat	atttgcattgg	420
cacagaggca	atttagattc	aggaagaatt	attttggtag	ggattgcgt	caattcagga	480
ttcagcggcc	tgtcttgg	tttatctta	aaaatggacc	cgcaagacta	tcaaattggcc	540
atggtgtgga	aaaacggaaag	catctggtct	gccaactgg	cgtatattac	agctgtactc	600
ccatggatgc	tgctgttat	accgattctt	atcggcaat	cccgctgct	cgacaccatt	660
cgttttgatg	aagacacagt	cagaaggctc	ggtatttcat	caaataaaga	aaaaaccatc	720
cttctcggt	cctgtgttagc	aatcatcagc	gctgtgtct	ccgtagcggg	aagtatggcg	780
tttgtcggct	taattgtcc	ccatatctca	cgagactgg	ctggcgtcga	acatcgctat	840
atcctgcac	tgagcggttt	aatcggatg	cttctgtga	taagcgcaga	cttgcggga	900
aaactgttt	ttcagccgc	agaagtgc	gcatcatcat	tttggcgatc	ctcggagg	960
cttatttctt	atatctgctt	ttcaagcaaa	aaaaggggg	aatgcttga	aaggatctct	1020
ttcagaacac	aaagccggca	acaggagg	cacgctgtac	ctccctcctt	cctacagcac	1080
agacagcggg	ggatttcctg	ctgttacgt	gcaggatggc	agttcttgc	tccaaaacca	1140
aatcgaatta	ctagaaagcg	ccttcaaca	gcaaaggctc	cctga		1185

<210> 19
 <211> 477
 <212> DNA
 <213> *Bacillus subtilis*

<400> 19						
atggctaaag	ccttgattac	atatgccagc	atgtcaggaa	atacagaaga	cattgccttc	60
ataataaaag	atacgcttca	ggaatatgag	ttggatatcg	attgtgtcg	gataaatgat	120
atggatgcgt	cttgcatttac	ctcctatgtat	tatgtactga	ttggcaccta	tacatggggg	180
gacggcgatt	tgccctacga	agcggaggat	ttttcgaag	aggtcaaaaca	gattcagctt	240
aatggtttaa	aaacagcctg	cttcgggtct	ggcgattatt	tttatccaaa	gtttgcgaa	300
gcggtaatt	tgttcaatgt	catgctgcaa	gaggcgggag	ctgctgttta	ccagggaaaca	360
ctaaaaattt	aattagcgc	tgaaacagat	gaagatgtgg	aaagctgc	agcgttgcg	420
agagggtttc	ttgcatggc	agattatatg	aacaaggaaa	aaatccatgt	ttcataaa	477

<210> 20
 <211> 894
 <212> DNA
 <213> *Bacillus subtilis*

<400> 20						
atgttccata	aaggggcaac	cgctgttacg	gcatcgccgt	tttctggata	ttttgtggcg	60
gtacaaagag	aaggcatttt	tcattactct	ttggagcagg	gctggagaaa	gctttttcgt	120
ttgaaaagta	agatacactg	tatcagctac	atagggcctt	acttatttgg	cgttggtgaa	180
aagggaacag	tcattcggtt	ggctgatgaa	ggggaaaaccc	ggacgatgtc	gagcttccg	240
acaaatgca	cagtgtggc	gattaccggc	agaaaacaacg	ggtttgtctg	cgcccacgg	300
aagcatttga	tttatgtatc	ggatgatttt	ggtgtctcat	ggcgcgttagc	caaacccttt	360
gccgaattt	ataatcccccc	tgttattccgg	tcgttatgcc	ttcacggggg	caatctctt	420
atcgacgc	aaatacacg	atattttggc	ggcatttggg	cttacgacat	taagcgtgac	480
actgtccaa	ttgtcaaaaa	agaaaaaaac	cgatgacgg	catccatgct	cgtgttcaat	540
gaaaatttgc	tggggccggc	gatgggtct	gtgaaaggaa	agcacgg	tgtcactgt	600
aggaatctt	tgaatggtga	agaatttacc	atacaatcca	gtatgatcg	aatgaagaa	660
tcatttctt	atcttcaga	ggatgatggc	attatataatg	tcactacaac	acaagatgaa	720
aatggtttt	cgagaattt	ccaggttgat	ctcgaagccc	ggtcgttaaa	atggttcgat	780
accattaagg	gacatggatg	gagagtggcc	aatcagaaag	agaatttctt	ttgcgcaggg	840
ttgtatgaat	gtaaatttgc	ccagccgtac	gaagttcag	aatgattca	ttag	894

<210> 21
 <211> 537
 <212> DNA
 <213> *Bacillus subtilis*

<400> 21

ttggcgaaga	tttgctcgt	ttatgcaaca	atgtcaggca	acactgaagc	tatggcagat	60
ttgattgaaa	aggggcttca	ggaggcgtta	gcagaagttag	accgtttcg	agcaatggat	120
attgatgatg	cccagctgtt	taccgattat	gaccatgtca	taatgggaac	ctacacgtgg	180
ggagacggag	atctgcctga	tgaattttta	gatcttgg	aagacatgg	ggagattgat	240
tttccggca	aaacatgcgc	tgtattcgtt	tccgggtata	cagcatatga	attttctgc	300
ggagcgggtt	atacgctaga	ggcaaaaataa	aaagaacgcg	gtggagacat	tgtgctgcct	360
tcggtaaaaa	tcgaaaataa	tccagaaggt	gaagaagagg	aagaattaat	aaacttcggg	420
agacaattcg	caaagaaaaa	gcgggtgcgc	tgtctgatca	ctcactgg	actgctaaaa	480
cggtgttcc	ttttttctt	gtcttttat	cttcctttt	atacagtaat	gaggtag	537

<210> 22

<211> 786

<212> DNA

<213> *Bacillus subtilis*

<400> 22

atgaatgcaa	agggtataga	gggaaaaatt	gttttataa	caggggctgc	ccaaggaata	60
ggcgaagctg	ttgcgcggac	gcttgc	caaggcgcac	atattgcggc	agttgattat	120
aatcctgaaa	agctggaaa	ggttgtg	agcctcaaa	cagaagcccg	ccatgcagaa	180
gttttcctg	cgatgtgag	agacagcgc	gcatgtg	agatcacggc	gcatgcgaa	240
cgtgaaatgg	ggccgattga	tattttagt	aatgtagcgg	gtgtccttc	cccccggactg	300
atccattcgc	ttagcgatga	ggaatgggg	gcgcac	cgtgaattc	gactggcgta	360
tttaacgcct	cgcgttcagt	cagcaaaat	atgatgg	gaagatcggg	ttcgattgt	420
acagtcggat	caatcctgc	cggtgtacca	agaacatct	tggcgcata	tgcgtctca	480
aaggctgcgg	ctgtatgtt	tacgaaatgc	cttggcctt	agcttgcaga	atacaatatt	540
cgctgcaaca	ttgtatctcc	cgatcaac	gaaacagaca	tgcagtgg	attatggcc	600
gacgagaatg	gagcggagca	agtcataaaa	ggatcactt	agacat	ttaa aacaggatc	660
ccgctcaaaa	aactagccaa	gccttcggat	attgcggat	cggtgc	tctt tttct	720
ggccaggcag	ggcatattac	gatgcataat	ttatgcgt	atggcggggc	gaccttaggc	780
gtgtaa						786

<210> 23

<211> 939

<212> DNA

<213> *Bacillus subtilis*

<400> 23

atggctatac	ctgccattca	gccgtatcaa	atgcccac	catctgat	gccgcaaaac	60
aaagtatcat	gggtgcctga	tccgaatcg	gtgttctt	taatacaca	tatgc	120
tat	tttgcgtt	atgc	tttgcgtt	taatacaca	gcgtat	180
cgaaagctga	agaatcaat	tggtcag	gggattcct	ttgtctatac	cgcacagcc	240
ggaagccaaa	atccggat	ccgtgc	ctgacagact	tttggggccc	gggattaaac	300
agcgtcctt	atgaggagaa	aattataacc	gagctgg	cagaggat	tgatctt	360
ctgacaaaat	ggagatac	cgcgtt	agaacgaat	tgctt	gatgc	420
gagggacgc	atcagct	cattacag	atttac	gcgt	tctt	480
gcgt	gat	ttat	tttgc	tttgc	tttgc	540
tttgcatt	aaaaacat	aatggc	gaat	atgc	ctgg	600
gtgtact	acagt	tgtcag	cagaat	gcgc	cgcc	660
tcagcaaca	ctggcaaaa	gaacgtt	atcat	gtg	gac	720
gagttt	taacaa	acacc	gaa	acat	acat	780
cttgattc	taaggat	cat	gacatt	gg	ggc	840
acttcgtt	aaatgg	ctg	acgccc	ggcgt	gaggt	900
cgccaggc	aagt	gtgc	aaacgcgg	gac	gac	939

<210> 24

<211> 1197

<212> DNA

<213> *Bacillus subtilis*

<400> 24

atgttggatc	aaaacgttat	aacagaaaaca	aaagcgagc	atttgcttca	tgaatatcat	60
ccgggcgcct	ttttcttagc	gtctccat	cgttactgt	tagcggaaagg	cataatgtgaa	120
attgtaccgg	aggcagacgg	gcaaaaccaa	atggaaaccc	tttctggccg	aattgcagag	180
gcgttacgtc	aggcaaaaaca	atcagggcaa	agccggccgc	ttgttgcgg	ggccgttct	240
tttgatecaag	taaaagcggc	geggctcggt	gtacactgaag	aagtgcgtg	gtcaggaccg	300
cttcaatttg	atcatgagga	aaaggaacag	caggctgggc	atacatacca	cataaaggct	360
gttcctgaac	ctgaggatta	taaaaatgtt	gttgaacaag	ggctggcacg	cattgcccgt	420
ggaacactca	gcaaaatcg	cctgtccaga	tcgctgcatt	tgcacatcgcc	tgaaccgatt	480
cagacggatg	aattgttgc	ccatctggct	cagcataact	cgcacatggct	cacgtttgcc	540
gcagacgtgt	ccagtcaggag	ggaaacgtct	coccgcagaaa	cattgctcg	agcaagtccg	600
gagtttctcg	tttcaaggat	gggaacacag	gtcggttcca	accatttgc	cggctcaaga	660
ccgcgcagta	atgatccgt	tgaagaccag	cgccgggcag	ctgaatttgc	ttctcccgca	720
aaggatctt	atgagcacgc	ggttgcgt	gacgcgggtt	cggcagcgct	gagaccttcc	780
tgccggacgc	tggagggttcc	ggagaagctt	tcactgtatca	aaacggaaac	gatgtggcac	840
ctgtcccg	tgattaaggg	agagcttcc	gaccgcgtct	taaccgcact	tgaatttggcg	900
gccccgcctcc	accgcacgc	agccgtctgc	ggaacaccgaa	ctgatcttgc	aagagaagcg	960
atttctcgca	ttgaaccatt	tgaccgcgtt	ttctttaccg	gcatggcg	atgggtgtgac	1020
gatgccggtg	acggagaatg	gatcggtgacc	atccgttgc	cagaagcaga	agaacgctca	1080
ctccgcctgt	atgctggagc	ttgttgcgt	gcccgttcaa	agcctgagga	cgagcttcag	1140
gagacgttccg	caaagtttcg	gacaatgt	cgggcaatgg	cggtggatca	catatga	1197

<210> 25

<211> 1488

<212> DNA

<213> *Bacillus subtilis*

<400> 25

atgagttctt	taacgatgca	agtgacgaaa	aggctggaga	cattttaca	gggaacaaaag	60
aagctttata	ttgacggaaa	gtttgttccg	agtgcctcag	ggcaacacctt	tgacactcca	120
aacccggcga	ccggcgaaaac	cttgcgtat	ctgtatgaag	cccaggctgc	ggatgtggac	180
aaagctgtta	aagctgccc	gaaagcctt	gaccaagggt	aatggagaac	aatgtctcca	240
gcttcgagaa	gcagactgtat	gtataagctg	gcagacttaa	tggagagca	taaaacttgag	300
cttgcgtcagc	ttgaaacact	tgataatggg	aaaccgatca	atgaaacgcac	taatggagat	360
attccgcgtt	ctatttgc	tatgcgtat	tacgcgggt	ggtgtacaaa	aataacagga	420
cagacgatcc	cgggttccgg	cgcttatttt	aattatacgc	gtcgttgc	tgtcggtgtc	480
gtcggccaga	tcattccatg	gaatttccg	ctcctgtatgg	cgatgtggaa	aatgggcgcg	540
gcacttgc	caggctgtac	aatcggttcc	aaaccggctg	aacaaacacc	gctttcagct	600
ctttatttgg	cagaatttac	tgaccaagcc	ggtttccctg	ccgggttaat	caacatcatc	660
ccaggatcg	gtgaagatgc	gggagaagcg	ctgacgaacc	acgaagcggt	tgataaaaatt	720
gccttacccg	gttccactga	aatcgaaaag	aaaatcatgt	ccaccgcgc	gaaaaggatt	780
aagcgtgtga	cattggagct	ggcgaaaaaa	tgccttataa	ttcttttgcc	ggatgcgaat	840
ttaaaaaaaag	ccatccccgg	cgctttaaac	ggtgtatgt	ttaaccagg	ccaagtctgc	900
tgtcgccggct	cacgtgtctt	cattcataaa	gaccaatatg	atgaagtgt	tgtgaaaatg	960
gcattcctatg	ctgactgtact	ccgccaaggaa	goggacttc	ataaaagatac	tcaaattcggg	1020
cctctcgtaa	gcaaggaaaca	gcatggcgc	gttcttcct	atattcaaaa	aggaaaaagat	1080
gaaggagcaa	aacgactgtac	cgccggaaagc	tgtcttttg	aaggatgtt	ttttgtcgca	1140
ccgactgtgt	ttgcgtatgt	tgaagacgaa	atgaccatcg	caaaagaaga	aattttcgga	1200
cccgtgtcga	ctgcatttcc	gtacgaaaaca	gtcgtatgt	ttattgttgc	ggcaaaaccat	1260
tcagaatatg	ggcttgcgc	cggtactatgg	acagagaacg	tcaaggcggc	tcactatatc	1320
gcggaccgcac	ttcaagccgg	aaccgttgg	gtcaactgt	ataatgttt	tgacgcggcg	1380
tctccatgg	gcgggttataa	acagtcaggaa	ctcggacgag	aaatgggatc	atatgccttg	1440
gataattaca	cagaagtcaa	aagtgtatgg	gtaaaccttg	aagactaa		1488

<210> 26

<211> 1146

<212> DNA

<213> *Bacillus subtilis*

<400> 26

gtgacagggt	tcatatcttc	tttccatc	ggagaaaaga	ttaacgaatg	gtatatgtac	60
atacgccat	tcagcatacc	cgatgcagaa	tatttgcac	gagaaatcaa	gcaagagctg	120
gatcaaatgg	aagaagatca	agaccttcat	ttgtactatt	cactgatgga	gttcggcac	180
aacctaattgc	ttgagttacct	tgaaccgtta	aaaaaaatg	ggattgagga	acagccgaga	240
ctgtctgatc	tgctgcttga	gattgataaa	aaacaggctc	gtttaactgg	tctgcttgag	300
tactattta	acttcttcag	aggcatgtac	gagctggacc	agcgggata	tctgtcgct	360
attaaattt	tcaaaaaggc	cgaaagcaag	ctgatattcg	ttaaggatcg	gatagagaaa	420
gctgagttt	tcttaagat	gtctgaatct	tattactata	tgaaacaaaac	gtattttca	480
atggactatg	cacggcaagc	atataaata	tacaaagaac	atgaagctt	taatataaga	540
ttgctgcagt	gtcattctt	atttgcacc	aatttttag	attnaaaaca	gtatgaggat	600
gccatctcac	attttcaaaa	agtttattct	atggcagaag	ctgaaaagca	gccccaattt	660
atggggagaa	ctttgtacaa	tatcgggctt	tgtaaaaaca	gccaaagcca	atatgaggat	720
gccataacctt	atttcaaaaag	agcaatagct	gtttttgaag	aatcaaatat	tcttccttcc	780
ttacactcaag	cgtatttttt	aattacacag	atccattata	aatttagaaa	aatagataaa	840
gctcatgaat	atcatagtaa	gggaatggct	tattcacaaa	aggccggaga	tgtaatatat	900
ttatcagagt	ttgaattttt	gaaatcttta	tacttatacg	gcccgatga	agaagcaatt	960
caaggattt	ttgattttct	cgaaagtaaa	atgttgtatg	ctgatcttga	agatttcgct	1020
attgatgtgg	caaaatatta	tcatgaacgt	aaaaattttc	aaaaagcttc	tgcttatttt	1080
ttgaagggtgg	aacaagtaag	gcaacttatt	caaggaggag	tgagtttgt	tgaaattgaa	1140
gtctaa						1146

<210> 27

<211> 1098

<212> DNA

<213> *Bacillus subtilis*

<400> 27

atgaataaga	tcgcacccgc	agaaatcgct	agcatgctca	acgattggta	ccttgcacatc	60
aagaaacatg	aaggtaaga	atcctccgt	ttatgttaag	aagtgaagcc	tttattggat	120
gacatggaaag	aggatcagga	ggtgcttgcc	tacttctcc	tatttgaact	gcgcacaaag	180
gttttgcctc	acgaggcgag	aggacagggc	tttcagcatg	aggagccttc	tcatatgaat	240
gctacgtctg	acatgctgaa	atattactt	tttctgtttt	aaggcatgt	tgaggcctat	300
aaaaataatt	atgacattgc	cattgggctg	tataaagatg	cagagcagta	tctcgacaaac	360
atccccgatc	cgattgaaaa	agccgaattt	cacctgaagg	tcggttaagct	ctattataag	420
ctgggacaaa	atattgtgtc	cctcaatcat	acacggcaag	cagtcaaaac	attcagagaa	480
gagacagatt	ataaaaagaa	gctggcttca	gccctgatta	ccatgtcagg	caattttaca	540
gagatgagcc	agtttgaaga	agctgaggt	tatttggacg	aagcaattcg	gatcacgagt	600
gaatttagagg	atcattttt	tgaagccag	cttttgcata	acttcggct	tctacatgcg	660
caaagcggca	aatcagaaga	agcggtttcg	aaatttagagg	aggctctaca	gaacgtgag	720
tatgcccgt	ccgcttatta	ttatcattct	gctacttgc	tgatacgaga	gctgttaag	780
atcaaaaaga	aagaacaggc	tttatctt	taccaagacg	tgaaggaaaa	attgactgct	840
gagccgaata	gaatatgtga	ggcaaaaata	gacattttat	atgcattta	tgcagaaggg	900
ggtcatgcgg	aaacgtttca	cttatgcaaa	caacatatgg	tgacttgg	gtccgagaaa	960
gagttatgaca	gtgttaagaga	actttccatt	ttggctggcg	aacggtatag	ggaacttgag	1020
ctttacaaag	aagctgcccc	cttttttat	gaagcattac	agattgaaga	actgattaaa	1080
cgaacggagg	ttatataa					1098

<210> 28

<211> 1296

<212> DNA

<213> *Bacillus subtilis*

<400> 28

ttgagtcaag	ccataccgtc	ttcgcgtgtt	gggtttaaga	ttaatgaatg	gtataaaaatg	60
attcgccagt	tcagtgttcc	ggatgcttag	attctgaaag	cgagggttga	gcaggacatt	120
cagcagatgg	aagaagatca	ggatttactg	atcttattt	ctctgatgtg	tttcggcac	180
cagctgtatgc	ttgatttattt	ggagccggga	aaaacatacg	ggaatcgccc	tacagtgaca	240
gagcttcttgc	aaacgatcga	gacccttcag	aaaaaaactca	caggtttttt	gaaatactac	300
tctttgtttt	tccgcggcat	gtatgaattt	gaccaaaaag	aatatgtgga	agcgatcgga	360

tattatcgcg	aggcggagaa	agaactgccg	tttgtgtcag	atgatattga	gaaagcggaa	420
ttccatttta	aagtggcaga	agcgtattat	cacatgaagc	aaacccatgt	gtcgatgtat	480
catattcttc	aaggcttgg	catttatcaa	aaccatcc	tatacagcat	tagaacgata	540
caaagcttgt	ttgtgatcgc	cgcaactat	gatgatttca	aacattatga	taaagcgctc	600
ccgcatttag	aggcggcgct	ggaattggca	atggacat	aaaatgacag	gtttatcgcc	660
atttctctat	tgaacattgc	aaacagctat	gacagatcag	gagacgatca	gatggctgta	720
gaacattcc	aaaaaagcggc	gaaagtaagc	agagagaaag	tgccctgatct	gcttccgaaa	780
gtctgtttg	gattaagctg	gacattatgt	aaagcgcccc	aaacacagaa	ggcgtttcag	840
ttcatagagg	aaggattaga	ccatattcaca	gcacgttctc	acaatttta	taaagaattg	900
tttctgttct	tgcaaggccgt	gtacaaggag	actgttgatg	aacaaaaat	tcatgatctt	960
ttaagctatt	tcgaaaaaaaaa	gaacctgcac	gcttacattg	aagcatgtgc	ccggagtgct	1020
gccgctgttt	ttgaaagcag	ctgtcactt	gaacaagcag	ctgcgtttt	tcggaaagtg	1080
ctgaaagccc	aagaagat	tctaaaaggg	agagtgtt	tatgcctatt	aagaaaaaaa	1140
gtgatgatgt	gtctggctgt	tactctagtt	ttcggaaagca	tgtcgtttcc	aaccctgaca	1200
aactccggtg	gatttaagga	atcgacagat	cgaaatacga	cgtatatcga	tcattccct	1260
tacaaactta	gtgatcagaa	gaaagccctt	agctag			1296

<210> 29
 <211> 1116
 <212> DNA
 <213> *Bacillus subtilis*

<400> 29						
atgagtaaga	tcgcttctga	agttgtcgct	actacactga	atgactggta	cattgctata	60
aaaaaacaaa	aggttcatgt	atcaataaaa	tattattcag	agataaaagaa	actttttgat	120
gaaatggaaag	aagatcaaga	agttctgcg	tattatagtc	tattagaaga	aagacataaa	180
atgttgcgc	attcttcacg	aggagacct	ttacaaaagc	acaccattt	tactgaagac	240
aatcaaaact	tcataacaaa	aacaaatgt	aaattagaat	acaactttt	tttatttga	300
gcaatgtacg	aggcatacaa	caaaaactat	gatcgagcaa	ttaacctata	ttggattagct	360
gagaaaaaagc	ttgcagaaat	tccagatgaa	attgaagcag	ctgaatttta	ctctaaagtc	420
tcttacttat	atactcttgt	taaacaaggc	attgtggcac	aacattat	aaaaaatgca	480
atttcaat	ataagcgaca	ccctgattat	aaatgcaaaac	tagctacatc	aacaatgatt	540
gcagctgcaa	actatgctga	tatgaaacga	tttgaggaag	cagaacaata	ttacttagaa	600
gcaattgata	ttgcaaaaaga	aacaaaagat	gaattttaa	aagctcaatt	atttcacaat	660
cttagtatcg	tttattctga	ttggaacaaa	cctgataaaat	gcattgaatc	tcttggaaaaa	720
gcaatagaa	atgaatcttg	gttacattcg	atttattata	taaattctt	attcatgatg	780
attaaagaac	tctttaaaat	tgacaaaaaa	atgaaagcca	ttaatttta	caataaagca	840
caggaaagac	tcatattat	ggagaataaa	gtatacgaag	ccaaaatcag	catcctgtat	900
aaccttatt	gtggggaaatt	aaaaataat	ttcaataatt	gtatttagtaa	tattgagttt	960
ttaaaacagc	aaaatgaact	tgaaagtgt	gatgaattgt	cctacatagc	tgcaaaaagg	1020
tttgaatcaa	tagtgctt	tgaagaagca	acgagcttt	tcaatgcgaa	aatttgggct	1080
gaacagaaaa	tgaatcaggt	ggagggaaatc	ttatga			1116

<210> 30
 <211> 1089
 <212> DNA
 <213> *Bacillus subtilis*

<400> 30						
atgctgaaaa	gaacgcccgtt	atttgacctg	tataaggaat	atggaggaaa	aacgatttgat	60
ttcggaggt	gggagcttcc	tgttcaattt	tcttctataa	aaaaagaaca	cgaggctgtc	120
cgaactgcag	ccggtttgtt	tgatgtatct	catatggag	aagtcgaatg	gtcaggaaac	180
gacagtctgt	cttttttgc	aagattgtat	acaaatgtat	tttccgcgtt	aacgcccaggc	240
cgtgctcaat	atacagcgat	gtgttacccg	gatggcgaaa	ccgtcgtatg	tttgcttatac	300
tatcaaaaag	gagagaaccg	ctatctgtt	gtcattaatg	cttctaatat	agataaaagac	360
ttggcttgaa	tgaaaagaaca	tgcagcagg	gatgtgcaga	ttgacaatca	gtcagatcaa	420
atcgcgctct	tggctgtaca	gggaccggaa	gcagaagcga	tcttaaaaaaa	tctgacagat	480
gcggatgtgt	ctgcattaaa	gccgttgcg	tttattgtat	aagccgat	cagcggccgc	540
aaagcactta	tttcacgcac	tggctatacg	ggagaagacg	ggtatgaaat	ttactgcgc	600
agtgatgatg	ctatgcata	ttggaaaaaa	atcatcgatg	cagggatgc	atacggattg	660

atccatgcg	gtctcggtgc	acgtgataca	ctccggtttg	aagcgaacgt	cccgctctac	720
ggtcaggagc	tgacccggga	tattacaccg	attgaagcag	gtataggctt	tgctgtaaag	780
cacaaaagg	agtcgtactt	tttcggttaag	tcagtattga	gtgaacaaaa	agaaaacgga	840
gcgaagcgca	aacttgcgg	tctcgaatgt	attgaaaaag	ggatacccg	gcacggat	900
gaggtttcc	aaaatggcaa	gtctgtcgga	aagggtacaa	ccggcacgca	gtcaccgaca	960
tttagaaaaa	acgtcgccct	tgccttaatt	gattcgaaa	cgagtgagat	cgggactgtt	1020
gtagatgtag	agatacgc	aaaattagt	aaagcaaagg	ttgtcaaaac	accattttat	1080
aaacgctaa						1089

<210> 31
<211> 1347
<212> DNA
<213> *Bacillus subtilis*

<400> 31						
atgaagcacc	gttatttgcc	cgcaacagaa	aaggataaac	aggagatgct	tgctactatc	60
ggcgtaagca	gcatcgatga	tttatttgct	gatataccgg	aaaacgtca	atataaaaaaa	120
gagcatcaaa	tcaaaaaaggc	gaaatcagag	acagaattaa	caagagaact	gacaaagctg	180
gcctctaaaa	atcgtgatac	cgtacaatac	gcttctttct	taggagcggg	tgtatatgac	240
caactatcagc	ctgtcattgt	ggatcatgtc	atttcgcgt	ctgagttta	taccgcata	300
acgccttatac	agccagagat	ttcacaagga	gagctccagg	ctattttga	attccaaacg	360
atgatctgt	aactgacagg	catggatatac	gccaactcc	cgatgtatga	cggcggaaaca	420
gccttggcag	aaggcagcaat	gcttgcattca	ggccacacg	aaaagaaaaa	aattgttgc	480
tcaaaaaaccg	tgcattcctga	atcgcgagag	gtgctgaaaa	cttacgc	aaaaggatgt	540
attgatgtt	ttgaagtacc	cgctgcggat	ggcgttacgg	atcttgc	attgcgc	600
accgtttgcg	agaacacacg	cgcagtgc	gttcgcgtacc	cgaattttt	cggcaggatc	660
gagccgctaa	aggatattga	gcctatcg	catcaaggga	aatccatgtt	tattgttca	720
gccaaccgc	tggcgctagg	tcttctact	ccgccccggca	agtttcagtc	tgatatcg	780
gtcgggtatg	cgcaccgtt	cggcattcct	tcagcatacg	gcggccccca	ttgcggctt	840
tttgcgtta	ctaaaaaatt	aatgagaaag	gtgccccggc	gtctcgctgg	acaaacggaa	900
gacgaaaaacg	gaaaaagagg	ctttgtgc	accctgc	ccaggagca	gcatatccgc	960
cgggataaaag	caacatcaa	tatatgc	aaccaagctt	taaatgc	ggcagcatca	1020
gtggccatga	ctgctctcg	aaaaaacgc	gtaaaaagata	tagccgc	aaatcttta	1080
aaaggcaact	atgcaaaagca	agaagcaaaa	aaagcaggcc	ttactgtt	tttgacggg	1140
ccgatgtt	atgaatttgc	catcaactg	gatgagccgg	tgagagctgt	gaacaagcgt	1200
ttgcggccaa	aaggcatgt	tggcgat	gatcttgggt	tgacgtatcc	agagctggac	1260
tgccatatgc	tgattgtgt	aacagagctg	agaacaaaag	aagaattga	cgcactcatt	1320
caggaattgg	gggatcgcca	tgagtaa				1347

<210> 32
<211> 705
<212> DNA
<213> *Bacillus subtilis*

<400> 32						
atgaatgaga	atatgagttt	caaagaattt	tatgcgattt	tcagacacag	attcgtgctg	60
attctgc	tcacaatcg	cg	tcgaccc	tttattgggtt	tttgcaatt	120
tcaccgac	accaggcg	tc	gacacagg	ctggttcat	aatcagacgg	180
tcaatc	gtgacatcc	gc	gaaatctt	cagtatagca	gcacgttca	240
aaaagca	ccttgatgg	ag	aaagttt	gccaatttgc	atcgattat	300
tcgctgaa	gaaaaagtgg	tttacc	ccagg	gaaaatgtt	caacgttgc	360
gttcaggat	acgatccgg	gaa	aggcag	gagattgc	acacgtt	420
gaaaaaga	tagatgaa	aatg	aaatgt	caaggcgt	atattattt	480
gttctgg	gcccgat	caag	ccgg	aggctgc	atatggt	540
gctgctgt	tggcgccat	tacact	ggc	at	tttgc	600
aaaagcgc	ggcagctc	cg	agagaacc	ggattgc	cttcctgt	660
gtccacaa	ggcggaaatc	cg	ggataaaa	catttcgggg	agtga	705

<210> 33
<211> 684

<400> 35

atgacgaaaa	agatattgtt	ttgcgcact	gttGattatc	atTTtaaggc	ctttcacctc	60
ccttatttta	aatggttcaa	gcaaATggc	tgggaggttc	atgtcgccgc	gaacggacaa	120
accaagctgc	cgtatgtgga	tgagaaattc	tccatcccg	ttcgcaggc	acctttgac	180
cctcagaacc	tggccgttta	taggcagctg	aagaaagtga	ttgacactta	tgaatacgc	240
attgtccatt	gccccatcaccc	ggtcggcggc	gttctcgcca	gactggcggc	gaggcaggca	300
cgccggcacg	gaacaaaggt	gctgtacaca	gCGCACGGAT	ttcacttctg	caaagggca	360
ccgatgaaaa	attggcttct	ttactatccg	gttgagaaat	ggctttcagc	atatacagac	420
tgcctgatta	cgattaatga	agaggattac	atacggcga	aaggacttca	aaggccggc	480
ggaaggacgc	agaaaattca	cggcattggc	gtcaataccg	agcgttccg	gcctgtca	540
ccgatagagc	agcaaagact	cagagaaaag	cacgggttcc	gtgaagatga	ttttatattg	600
gtttatccgg	ctgagctcaa	tctgaacaaa	aaccagaagc	agttaattga	agccgcagcc	660
ttgctaaaag	aaaaaattcc	ctcactccgc	cttgcgtttg	ccggggagg	ggcaatggaa	720
catacgatc	aaacgttagc	tgaaaagctt	gtgcctccg	cccatgtctg	tttttacggc	780
tttgcagcg	acatacatga	gttgattcag	cttgcggatg	tatctgtcgc	atccagcatt	840
agagaaggcc	tcgttatgaa	tgtgcgttag	ggaatggcgg	cagaacaacc	ggcgatcgcc	900
acagataatc	gcgggcatcg	ggaaatcatc	cgcgcacggag	aaaacggttt	tctgatcaaa	960
atcggtgaca	gtgtgcctt	tgccgcggg	attgaacagc	tttaccataa	gcccggagctc	1020
tgccgaaagc	tggacagga	aggccgaaaa	acagccttc	gcttctcgga	ggcgcaacg	1080
gtggaaagaaa	tggcagatat	ttattccgcg	tacatggata	tggatacaaa	ggagaaaagc	1140
gtatga						1146

<210> 36

<211> 837

<212> DNA

<213> *Bacillus subtilis*

<400> 36

atgaactcag	gaccgaaaagt	ttctgtcatt	atgggcattt	ataattgcga	acgcactttg	60
gcagaaaagca	tagaatccat	actcagccaa	tcctataaaa	attggggagct	gattttgtgc	120
gatgatgcgt	caacagacgg	cacgctccgt	atcgcgaagc	agtatgcgc	tcattacagc	180
gaccgcatac	aactgattca	aaacaaaaca	aataagcggc	ttgcccgc	attaaatcat	240
tgtcttcgc	atgcgacagg	cgattatac	gaacgtcagg	acggagatga	cctttcggtt	300
ccgcgcgc	tggaaaagca	ggtcgcgtt	tttagaaaagc	accgacacta	tcaggtgtt	360
ggcacccgca	tgcttgcgtt	tgtgaattt	ggcgttaagag	gcgcggcat	tctgccttct	420
gttccggagc	cgggcatacat	ggcaaaagg	actccatttt	gccacggcac	gattatgtat	480
agagcgagt	cctaccgcac	gctgaaaggc	taccggcgg	tgcggcggac	gagacgaatg	540
gaagatattt	atttgcgtt	tcgcttttt	gaagagggt	tcaggggcta	taatcttcag	600
gaaggcctgt	ataaaagttag	ggaagacagc	gatgcattca	aacggcggtc	atttacgtat	660
tcaatcgaca	atgccattct	tgtctatcg	gcgtgcagac	gcttgcgtt	tcctttatct	720
gattacatat	atatcgcaaa	accgttaatt	cgcgccttta	tgcctgcagc	tgtgtatgaat	780
cgctaccata	aaaaaaagagt	gatgaaccaa	aaggagggc	ttgtcaagca	tgaatag	837

<210> 37

<211> 1155

<212> DNA

<213> *Bacillus subtilis*

<400> 37

atgaatagca	gccaaaagcg	cgtgcctccat	gttctcagcg	gcatgaacag	gggcggcgcg	60
gaaaccatgg	taatgaattt	atatcggaag	atggacaaaaa	gcaaagtgc	atttgattt	120
ttaacgtatc	gaaatgatcc	gtgcgcctt	gatgaagaga	ttttatctt	aggcggcgg	180
ctttttatg	tcccgagcat	tggcCAAAGC	aatcccctt	catttgcgt	aatgtgaga	240
aacgcgataa	aagaaaatgg	gccgttcagc	gccgttcat	cgcacacgg	tttccaaacg	300
ggttttatcg	cccttgcggc	aaggctcgcc	ggagtgcgg	tcagggat	ccactccac	360
aatacgttt	ggaagacccg	cttcaactgg	aaggatcgat	tgcagctgt	cgtgttcagg	420
cggctcat	tggcaaaatgc	gacagcgt	tgcgcctgcg	gagaggatgc	gggcagggtt	480
ttatattgcac	agtccaaat	ggagcggag	cgtgttca	ttcttcctaa	cgggatttgc	540
cttgagttgt	tcgccccaaa	tggcaggcg	gctgtatgaag	aaaaagcagc	acgcggcatt	600
gcagccgacc	ggctcatcat	tggccatgt	gcccgttcc	atgaagtgaa	aaaccacgcg	660

ttcctgttga	agcttgcgc	acatctcaag	gaaagaggca	ttcgcttca	gctcgttcg	720
gcgggagacg	ggccgttgt	cggggagata	gaggaggagg	cgcggcagca	gaatttgcta	780
tcagacgtcc	tctttttagg	cacggaagaa	cggatccatg	aactgatgcg	aacattcgat	840
gtatttgc	tgcgtctct	gtacgaaggc	ttccgggtt	tgcttgcga	agcgcaggcg	900
tcggggcttc	catgcatcat	ttcagacagc	attacagaaa	aagtcgacgc	cggctctcgg	960
cttgcacaa	gattaagtct	ttctgagccg	atcagcgtct	gggctgaaac	cattgcaagg	1020
gcggccggcc	caggcaggcc	gaagcgtgag	ttcatcaaag	aaacactcgc	tcaacttgc	1080
tacgatgcac	agcaaaatgt	aggagcgtg	ctgaatgtat	acaacatcag	cacggaaaag	1140
gaccataacc	gatga					1155

<210> 38
 <211> 1104
 <212> DNA
 <213> *Bacillus subtilis*

<400> 38						
atgattgtat	atgccgtcaa	tatggggatt	gtatttattt	ggtcttggtt	cgctaaaatg	60
tgccggcgcc	gtgatgattc	gcttgcac	gggtatcg	cgaataagct	tttgcgtctgg	120
attccgctcg	cttca	cttgcgttgc	ggtctccgc	atcgagtcg	cacggatttt	180
cagacgtaca	cgctgttgc	cgaattggcg	ggcgattatc	aaaatgtgt	gcagatattc	240
ggtttgcga	cagcgaaaac	agcgacagat	ccggggttta	ccgcactcct	ttggctgtatg	300
aatttcatca	cggaagatcc	tcaa	tat	tacgg	ttggcggtcg	360
tttattatga	agacactcgc	cgactatggc	aggccgttt	agctgagtgt	cttttattt	420
ttgggaacct	ttcattatta	cgcatcttt	aa	ccgcata	ggtaatacat	480
gtttgtttt	gggcgatccg	ttat	atcatt	agcgggaact	ggaagcgata	540
gtgctggta	gctcgctt	tcattcg	tcg	gcgctgatta	tttgcgtatt	600
gtcagaagaa	aaggcgtgtc	accggcgata	ttcggctat	ccgcttt	tctcggcatg	660
acattttat	atcaaaaatt	tat	tcgt	tttgcgtt	tactgaaaa	720
agccattatg	aaaaatggct	catgac	aa	acaaatggaa	tgaatgtat	780
gtttgggtc	tgccgctgtt	ccttgcattt	tgctataa	aa	acgactgcg	840
ccgcaaattg	atattgtcgt	caatttgc	ctgctaggtt	tttgcgtt	cctttggcc	900
acaaaggacg	tgat	tttgc	cagattca	attat	ttcgtatca	960
gtcccttatt	tcgtcaggat	atttgc	aa	atcgaac	ctcttatcta	1020
gttgcgtt	atttctta	cagttatttgc	cttgc	ccgc	tcgattcata	1080
tacagaacga	tttttcccg	gtaa				1104

<210> 39
 <211> 1077
 <212> DNA
 <213> *Bacillus subtilis*

<400> 39											
atgcgttac	aatcg	aatcaat	tttgc	gcagaatggc	tgctgc	aaa	ggtcaaaat	60			
ccgtcccaat	at	ttggct	ggg	agcggc	agat	caac	ccgt	aa	acatc	gaaa	120
aaaatcatac	tgac	ccct	gtct	gccgt	ccc	cat	gaca	attt	ggat	cacgc	180
gccagcaagg	catt	tctt	gta	gcaaga	atac	ccgg	actt	tg	tcgt	atcg	240
aaggacattt	aca	aaat	cagc	aaa	aggc	ctg	atcc	gc	cc	atgc	300
tttatcatcg	gc	gc	gggaaa	cat	gggg	gat	tt	at	acc	gt	360
ttc	cat	catta	aaac	attt	cc	tgact	atc	gg	tc	cc	420
tctgacacga	aaa	aaaagg	ggcg	caa	agg	act	tttgc	tttgc	caac	gg	540
ccggcctat	tg	ctg	atgg	gat	gg	gat	gc	at	tttgc	at	600
caagaaaaaa	ca	at	tttgc	gaa	gc	agcc	gg	at	tttgc	at	660
cccg	caga	ac	gc	aa	gg	gg	tttgc	tttgc	gagg	at	720
gaggagcaga	gg	aa	ccgg	gg	ca	gg	ct	at	gt	gagg	780
tttacgacaa	cg	at	cg	gg	cc	gg	gt	cg	at	cc	840
ctgtggtcta	ag	ctg	caa	ag	cg	aga	gc	tc	gt	at	900
tttgcgcgc	tg	ac	agg	ga	cc	gt	tc	tt	gc	gc	960
gagggcatac	aat	gg	ctt	aa	ag	ac	at	cc	at	cc	1020
gagcgcgtaa	cag	ccgc	ca	gt	cc	gg	ct	ta	ac	aa	1080
ccgagagatg	tgt	at	ttt	aa	gg	at	tt	tt	at	cc	1077

```

<210> 40
<211> 1035
<212> DNA
<213> Bacillus subtilis

<400> 40
atgatccgc tcgtcagcat tattgtcccg atgtataatg ttgaaccatt tatagaagag      60
tgcattgatt ctttgcttcg tcaaacgctt tctgatattg aaatcatcct cgtgaatgac      120
ggaacaccgg atcggtcagg cgaardtgc gaggactatg caaaacggga tgcgagaatc      180
cggtcattc atcaggcaaa cggcgggctt agttcagcgc gaaatacggg aataaaggcc      240
gcgcggggca cttacatcgg cttttagac ggagacgatt atgtatcatc cgccatgttc      300
cagaggctga ctgaagaagc ggagaaaat cagttgaca tcgtcggatg cggttttac      360
aagcgtcat cggacaggcg gacatatgtg cgcgcgcagc ttgaggcaaa cgcgtgctg      420
acgaaaccag aaatgactga acagctaaa catgctcagc aaacgagatt tatctgttat      480
gtatggcgtt atcttaccg tcgtgagctt tttgaaaggcg aatctgct gtttgatgaa      540
gacatccgtt ttgctgaaga ctctccctt aatttgcgg ctttcgcga agcggagccg      600
gtgaaaatgc ttgatgaagg attgtacatt tatcgtgaaa acccgaacag cctgacagaa      660
atcccttata agccggcgat ggtgaacat cttcaaaaac aatatcaggc taaaatcgca      720
ttctacaatc actacggctt agcaggcgca tgtaaagaag atttgaatgt gtacattgc      780
aggcaccagc ttccgatgct tttggcaat gcctgtgctt ctccgaattc gccgaaagac      840
atcaaaaaga agatcagaca gattttatcc tatgacatgg tgcggcaggc tgcagacat      900
acaccgttc agcatgagaa attattaaga ggagagcgtt tggatttagc actgtgtaaa      960
tggcggctca ctttctcat caagctgtt ttcgagcagc ggggacaat gaaaggcagt      1020
gcgaaggcagg catga                                         1035

<210> 41
<211> 1002
<212> DNA
<213> Bacillus subtilis

<400> 41
atgaaatgt taaaacgaga aggcttgc ttaactgagg aaaaagcgct gtggatgtac      60
caaaaatgc tggagatcag gggcttgc gacaaatgc atgaactgtt cgcccaggga      120
gtgctcccg gattcggtca tttatatgc ggtgaggaag ccgtggctgt aggggtgtgc      180
gctcattac atgatggcga cagcattaca agcaccacca gggacatgg acattgtatc      240
gccaaggct gtgacctgga cggcatgatg gcggaaattt tcggaaagc gaccggattg      300
tgcaaaggca agggcggttc tatgcacatt gcggatctt gataaaggcat gttaggcgca      360
aatggatcg tcggggcggtt cttacgctc gcatcggtt cagcgctcac ggctaaatat      420
aaacagacta aaaatgttaag cgtttgcattt ttccgggacg gggcaaataa ccaaggtacc      480
ttccacgaag ggctgaattt agcggctgta tggaaaccttc ctgtcgtatt tggctgaa      540
aacaacggt atggcgaagc tacccattt gatgtacgcgat cagctgtga ttcaatcgcc      600
gatcgccggg ctgcttataa catgccccgg gttacagttt acggcaaaa tattttagca      660
gtttaccagg cagccgagga agcgatagaa agagcaagaa acggccggcg cccgtcttg      720
attgaatgtt tgacctacag aaactacggc catttcgaag gagatgccc aacctataaa      780
acgaaggatg aaagagttga gcaccttgc gaaaaagatg ccattcaagg tttaaaaac      840
tacctttaa aagaaacaga tgctaataag ctgtcagaca ttgaacagcg tgcagcga      900
tcgattgaaa aagccgtctc gttcagcga gacagcccat atccaaaaga ttcggagctg      960
ctgacagatg tgtatgttc atatgaaaaa ggaggaatgt aa                                         1002

<210> 42
<211> 1029
<212> DNA
<213> Bacillus subtilis

<400> 42
atggcgagag tcataagcat gtcagacgcg atcaatgaag caatgaagct tgcgatgaga      60
aaagacgaaa atgtgctttt gatcggttag gatgtcgccg ggggagcggc ggtcgatcat      120
ttgcaggatg atgaagcatg gggcgggtga ttaggggtca caaaggact cgtacagggaa      180
ttcggcgta caagagtgtt ggacactccg atttctgagg caggctatat gggagcggct      240

```

atggctgcgg	catcaaccgg	tttgagacccg	attgccgagc	tgatgtttaa	cgattttatc	300
ggcacgtgct	ttgatcagg	gatcaaccaa	ggggcgaaat	tccgttataat	gttcggcgga	360
aaagcgcaag	tgcgcattac	cgtcgcacc	acatacggag	cagggttccg	ggccgctgcc	420
cagcattcac	aatcgctgta	tggcctttc	acgagcatcc	ctggactgaa	gacagttgtt	480
ccatccaatc	cgtatgatgc	caaaggctt	ttgcttgcag	caatagaaga	taatgatccg	540
gtgttttct	ttgaagacaa	aacgtctac	aacatgaagg	gcgaggtgcc	ggaagattat	600
tataacaattc	ccctcgaaa	agcgatatac	aaacgcgaag	gcaatgatgt	tacgctctt	660
gcagtcggca	agcaggtcaa	tactgcgtt	gaagcggctg	cacagcttc	agagaggggc	720
atcgaagccg	aggtcctga	tccccgcagt	ctgtctcctc	tggatgagga	tgcgatttc	780
acatcgtag	aaaaaacaaa	ccggctgatc	attattgatg	aagccaatcc	gcatgcgc	840
attgccacgg	atattgtgc	gcttgcgt	gacaagggt	ttgatttgct	tgtgcggcc	900
attaaacgga	ttacagcgcc	gcatacaccg	gttccgttt	caccagtgc	tgaagatcaa	960
tatttgcga	caccagataa	aattgtcagc	gtcacgctt	aattgcttgg	cgagccggca	1020
ttgaattaa						1029

<210> 43
 <211> 1197
 <212> DNA
 <213> *Bacillus subtilis*

<400> 43						
atggcggtaa	aagtagtgat	gccaaaattg	ggaatggcca	tgaaacaagg	ggaagtatcg	60
atatgaaata	aaaaagttagg	cgaccgggtt	gaaaagggag	aaagcattgc	cagcattcaa	120
tcggagaaaa	ttgaaatgga	gatcgaagcg	cctgaaaaag	gaacgctgat	cgatatcaa	180
gtgaaagagg	gagaagaggt	tccgcccgc	acagctatct	gctatatcg	ggacgccaat	240
gagtcggtgc	aggaagagggc	ggggggccct	gttgcgtaa	acaatatgcc	gcaagccgtc	300
cagcccgta	aacaagaaaa	caaaccgc	gcctccaaa	aagatcgaat	gaaaatatct	360
ccagtcgcca	ggaaaatagc	agaaaaagca	ggattagacc	taaaacaact	gaaaggaact	420
ggaccaggcg	gacgaatcgt	gaaggatgac	gtaacaaagg	ctcttgctga	acagaaaaaa	480
gatcaagcaa	agcctgtttc	ggagcagaaa	gcccgggac	tcccggtgac	aggcatgaga	540
aaggtcatcg	ctgcccgaat	gcagggaa	ctggcaaaaca	gcgcgcagct	gacgatcacg	600
atgaaagctg	atatcaccaa	gcttgcact	cttcaaaaac	agcttcacc	aactgcgaa	660
gagagatacg	gcacaaaact	gacgatcact	cattttgtct	caagagccgc	cgttctcgct	720
ctgcaagctc	accctgtgct	gaacagctt	tatcaaaatg	agcgcacat	cacacatccc	780
catgtgcacc	ttggtatggc	tgtgcctt	gaaaatggct	tagtgggcc	tgtcatccgc	840
catgctgaaa	agctatcgct	gattgaactg	gctcaatcca	tctcagaaaa	tgccaaaaaa	900
gcacgcgagg	gacgtgcggg	aagcgaagaa	ctgcaaggat	ctactttctc	cattacaaac	960
cttggcgcgt	ttggagttg	gcatttcaca	cgataactaa	atccgcgg	aacaggcatt	1020
ctcggcatacg	gagaagacta	tgacacaccg	gtgtatcaag	gggaggagat	cgtcagaagc	1080
acgatcctgc	cactcagcct	gacatttgat	cacagagcgt	gtgacggcgc	ccctgcccgt	1140
gcattcctga	aggcgatgaa	aacatattt	gaagaacccg	cagcattaaat	tttata	1197

<210> 44
 <211> 1377
 <212> DNA
 <213> *Bacillus subtilis*

<400> 44						
atgacatttag	ccattatcg	cgccggaccc	gcaggctatg	cggtgcgg	ttccgcggca	60
cagcaggcga	gaaacgtgct	gctcatgac	aaaggcaagc	ttggggggac	ctgcctgaaat	120
gaaggctgca	tccgcacaaa	gtctttgtt	gaaagcgcaa	acgttctg	taaaatcaag	180
catgccgaca	gttttggat	cgaaactccg	gcagggtgc	tatcagtcg	ttggagtaaa	240
atgcaaagcc	gaaaacaaca	ggttgtcagt	cagttgtcc	aaggcgtca	gtaccta	300
aagaaaaatc	aaatacagg	tgtaaagg	acagcctcc	ttcttctg	aagaaagctc	360
ttgatcgaag	gagaaaaacgg	aaaagaaatc	agagaggcgg	accaagtatt	gattgcctc	420
gggtcagagc	caatcgagct	gcctttg	ccatttgac	gcgaatggat	cctcgacagc	480
aaagacgcgc	tttcttttc	cgagatccg	tcttcactag	tcattgtcg	cgccgggtgc	540
atcgggtgt	agtatcgagg	gctgtcg	agattggat	cgcagggtac	catcattgaa	600
acagcggacc	ggctgatccc	ggctgaagat	gaagatattt	cccgtctt	tcaggagaaa	660
cttggagaa	acgggtgtc	agtgcata	tcatccagat	tagggcggt	ggatcaaacg	720

gccaaaacgg	caatatggaa	aagcggtcag	cgagagttt	aaacgaaggc	cgattatgt	780
ctggtggcga	tcggcagaaa	accccgctt	gacggattgc	agcttggaca	ggccggagtt	840
gatttttctc	caaagggcat	tccggtgaat	gggcacatgc	agacaacgt	gcctcatatt	900
tacgcgtgcg	gagatgttat	agggggcatt	cagctcgcc	atgcccgtt	ccatgagggc	960
atcatcgctg	cttctcatgc	ttccggaagg	gatgtcaaaa	tcaatgagaa	acatgtgccg	1020
cgctgcac	atacgtcccc	ggaaatcgcg	tgtatcgaa	tgacagaacg	acaggcaaga	1080
agcatatacg	gggatgtgaa	gatcggcga	ttttcatttt	ccgcaaacgg	caaggcgctc	1140
attaaacagc	aagcggaaagg	aaaggtcaaa	atcatggctg	aaccggaaatt	cggcgaaatc	1200
gtgggtgtct	cgatgattgg	cccgatgt	accgagctca	tcggccaagc	ggcagcgatc	1260
atgaatggtg	agatgacggc	agatatggcg	gagcatttt	tcggccccc	tccgacttta	1320
tcggaaacat	tgcatgagggc	gctgttaagc	acgatcgccc	ttgcggta	tgcataaa	1377
<210> 45						
<211> 582						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 45						
atgacaggcg	tttggtagt	aagacatgg	gaaaccgatt	ggaacctgca	gcaaaaatgc	60
caaggcaaaa	ccgatatccc	gctaaacgc	acaggtgaac	gccaagcaag	agaaaaccgga	120
gaatatgtaa	aggactttc	ttggatatt	attgtgacga	gcccgtgaa	aagagcggaa	180
agaaccgcgg	aaattattaa	tgaatatctg	catttccga	tagtcgagat	ggatgattt	240
aaggAACGCG	attacggcga	cgcggaggc	atgcccgtgg	aggaacggac	aaagcgctat	300
ccagataaca	tctatccgaa	tatggaaacc	ttagaagaac	tcactgacag	gctgtatggc	360
ggtttggcaa	aagtgaatca	ggcgtatcca	aacaagaagg	tgctgtatcg	ggcgcacgg	420
gcggcaattc	acgcccgtct	gacagaaata	tcggcggtt	accggagct	tcaaagcacc	480
cgtctcgatca	acgcctgcct	cagcaacatt	gaatttgcag	aagaaaaatg	gcggataaaaa	540
gactataata	tcaacagcca	tttatccggc	tttatcaat	aa		582
<210> 46						
<211> 1095						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 46						
atgaatgcgg	ttattgttga	tgcaaaaacga	acgatcttt	gaaatcaaaa	cggaactgct	60
aaggccctcc	tgccggagga	tttggcggt	cccatcatcc	gctgtctcag	ccgaaagcta	120
gaggatcaag	ttgacgagg	cattctcgga	aaacgtactg	gcagaggcgg	caacctggcc	180
agactgtcag	cccttcaagc	cggactgcct	ttatcggttc	ccggaatgac	aattgacaga	240
cagtgcgtct	ccggccttga	agctgtgcgc	tatgcctgca	gccttattca	agcgggagcc	300
ggcacgatgt	atatcgccgg	cggctcagaa	agcagcagcc	aatccccctt	ttcagaacgg	360
gctcgcttt	ctccagatgc	gatcgccat	ccagacatgg	gcatgtcgcc	agaatatacg	420
gctgcacgct	attccatcg	cagaagcatg	caggatgagt	acgcgttct	cagccatcaa	480
cgcagcagga	acgcgcatga	tgaaggattt	taccgtgaag	aagttgttgc	tctcgggaa	540
ttggagacgg	acgaagcatt	tttggaaaacg	cggccaatag	aagcgattt	tccccgtgca	600
aagccgttt	tcgacaccag	ctccgaaaca	gtcacagcag	ccaacagcag	tggcatagca	660
gacggagcag	ccgccttttt	ggtaatggaa	gaagaaaaag	cagcagccct	gggacttaag	720
cctgtgttcc	ggtttatacg	cagcgctgtc	agcggcattc	accccaactt	tccgcccgc	780
gcaccgggtt	tcgcgattcg	tcagcttta	catacacacg	atgtaacacc	tgatgatattc	840
gatttatttgc	aaatcaatga	agcctttgcc	gtcaaaaattt	gtgtctgtc	gcaagaactc	900
ggcattccct	tttcaaaaat	caatgtgcgc	ggcggcgct	tagcttgg	ccatccgtac	960
ggtgcacatcg	gtgcagctct	ggtaaccaga	ttgtttatg	aagcggaaaag	acggccagac	1020
tgtcaatatgc	ctgtgcagc	catcggaagc	ggcggcgaa	tcggactggc	tttattttt	1080
gaagttcttg	catacg					1095
<210> 47						
<211> 1440						
<212> DNA						
<213> <i>Bacillus subtilis</i>						

<400> 47

atgacaatta	ctcataccta	ttcatctact	gcccggccg	tgttagcgatc	60
cagactgaat	cggagcaaat	cacgtaccat	gattgggatc	ggcttgcgtc	120
aattggctgc	ggtcacagcc	gagcatgccc	aatcggtgg	cgatcctgct	180
ctcgcttt	tacagctgtt	tgccggagcc	gcagcggctg	gatgtacggc	240
gacacacgct	ggagccccc	tgaatgtaa	gagcggctgt	ccataagcaa	300
gtggttactt	tagcctttt	caaaaacaaa	ctgacagata	tgccgatctt	360
ctggataact	gtatggcaga	tatttcgtag	gcagccgctg	atcccgtgcc	420
ccggagcacc	ctttttat	gggatttacg	tccggctcg	taccattgtat	480
acgcgatctc	accgctcatg	gatggagagc	tttacctgt	cagaaacaga	540
tcatcagatg	ataagggtct	gattcccgga	gcgttaatgt	cctctcaactt	600
gctgtcagca	ctttgtttct	cgaggaaacc	gttgggttgc	ttctcctgccc	660
aaagcgaagg	aatggctgt	ccgtgaatcc	atcagtgttc	tctataccgt	720
acagaccccc	tcgcaaggat	tgagggtttt	cccgacagtc	catttcatcc	780
ggcgcagact	ggccggcaga	atccaagaag	aagcttgcgg	ctgcatggcc	840
ctgtacgatt	tttacggcac	atcagagctt	atgtttgtga	cgttttcttc	900
agcaaacgga	agccgcattc	agcggccgc	ccttttcata	atgtccggat	960
aacgctggag	gagaacgcgt	ccagccagga	gaaatcgaa	cgaaatccgc	1020
atgagggttt	ccgctatgt	gaacggcagc	acaccagatg	aatggatgac	1080
atgggctacg	ttgatgaaga	gggcttcta	tacatatcg	cgggatgatc	1140
gtgtacggag	gattaaatat	tttcccagaa	gaaattgaac	gtgtgcttct	1200
gaggttggaa	gcgcggctgt	cggtggcatt	cccgacgagt	aatcgctgt	1260
gctgtcattc	ttgaaacgc	taatgcaga	acactgaaag	cctgggtaa	1320
gcctccata	aaattccgaa	aaaatgggt	tttgcagaca	gcttgccga	1380
ggaaaaattt	cccgttccag	agtaaaaaa	tggctggaa	aacgagcagc	1440
			agagtgtaca	gtataaatga	

<210> 48

<211> 561

<212> DNA

<213> *Bacillus subtilis*

<400> 48

atgctgaat	taatcgacat	gatgcatttca	ccgcgcgtat	ggcagtgc	60
ggcttatgc	ccctctctt	cttaccttt	acacccgttc	cgattacatt	120
ggtgtcatgt	tggcaggcag	cattctcagg	ccaaagtctg	ctttcttaag	180
ttttgctgc	tcgtcgcc	cgagcgc	ctgttgc	gcggacgagg	240
gtgttttcg	gaccgagcgc	aggcttttgc	atgtcttata	ccctcgctt	300
agtttagccg	ctaacaggct	gccaagggt	acagtattgc	gtctctttt	360
gtattcgca	tcatcttat	ttatctgtt	ggtataccgg	tacaagctt	420
attgatttgt	cacaggccgc	cttcatgagc	cttgcata	tgcctggta	480
gcggctgtat	ctgcatttct	ggcgataaaaa	atcactcaag	ccttgtctt	540
atgtttacaa	aaggaggatg	a			561

<210> 49

<211> 1299

<212> DNA

<213> *Bacillus subtilis*

<400> 49

ttgttattta	aaaaagacag	aaaacaagaa	acagcttact	tttcagattc	60
aaaaaaaaacc	gcattcagct	cacaaacaaa	catgcagatg	tcaaaaaaca	120
gtcagggtgg	gagatgtga	gtttagtgc	ttagagcagc	ttcagccact	180
aatatcgtaa	atatcgtaa	tgcgtttat	aaaaaccttgc	accatgaaag	240
gatatcat	atgatcacag	ctcagttgc	cgcttaaaac	aaacgttaaa	300
caggaaatgt	ttgcaggcgt	tatcgatgt	gaatttattgc	aaaagcgtaa	360
tccatccatt	taagaatcg	ccttttgc	aaatggtata	tgggtgcgtt	420
ctttgtcaa	tgattgacat	ttatgaagcg	tccattacaa	tcaagagctc	480
gccattaaag	caacaacaaa	aatcttgaac	ttagaacagc	agcttgcctt	540
caaagcagat	acaaccagac	ccgtgatgaa	caagaagaaa	gaaaaaacct	600

aaaattcaag	aaacctctgg	atcgattgcc	aatctgtttt	cagaaaacaag	cagatcagtt	660
caagagctt	tggacaaatc	tgaaggcatt	tctcaagcat	ccaaagccgg	cactgtaca	720
tccagcactg	ttgaagaaaa	gtcgatcgcc	ggaaaaaaaa	agctagaagt	ccagcaaaaa	780
cagatgaaca	aaattgacac	aagccttgc	caaatcgaaa	aagaatggt	caagctggat	840
gaaatcgccg	agccaaattg	aaaaatctt	ggcatcgta	caggcatagc	tgaacaaaca	900
aaccttotct	cgtcaatgc	atctattgaa	tccgcccgg	ccggagaaca	cggccaaaggc	960
tttgcgtcg	tggcaaatga	agtgcggaag	ctttctgagg	atacaaaaaa	aaccgtctct	1020
actgtttctg	agettgtgaa	caatacgaat	acacaaatca	acattgtatc	caagcatatc	1080
aaagacgtga	atgagctgt	cagcggaaagt	aaagaaaaaa	tgacgcaa	taaccgttta	1140
ttcgatgaaa	tcgtccacag	catgaaaatc	agccaaagagc	aatcaggca	aatcgacgtc	1200
gatctgaag	ccttcttgg	agggcttcag	gaagtca	gcccgttcc	ccatgtggcc	1260
gcttccgtt	attcgcttgt	catcctgaca	gaagaataa			1299

<210> 50
<211> 1350
<212> DNA
<213> *Bacillus subtilis*

<400> 50						
atgaagaaaa	aatcattctc	aatcgtaata	gcggggcggag	ggagcacttt	cactccaggg	60
atcgtaactca	tgtcttttgg	ccatggag	gagtttccga	tcagaaaagct	gaagctgtat	120
gataatgata	aggagagaca	ggatcgaaatt	gcaggcgcct	gtgacgtttt	tatcagagaa	180
aaagcgcgg	atattgaatt	tgcagcgacg	actgaccgg	aagaagctt	tacagatgtc	240
gattttgtta	tggcgcacat	cagagtgg	aaatacgcga	tgcgcgcgt	tgatgagaa	300
attccgttaa	agtacggagt	tgtcgccag	gagacgtgcg	ggccggcgg	gatcgcatac	360
ggtatgcgtt	cgtatggcg	tgtgtttgaa	attattagatt	acatggaaaa	atactcgect	420
gatgcgttgg	tgtcaattt	ttccaaatccg	gcggcaattt	tggctgaagc	tacgagacgc	480
cttagaccga	attctaaaat	tctcaatatc	tgtgtatgc	cggttggat	cgaagacgg	540
atggcgc当地	tttggcgtt	atcctcaaga	aaagaaaatga	aggtccgcata	ttacggattt	600
aatcatttgc	gctgggtggac	atcgattcag	gatcaagagg	gcaacgattt	aatgcgaaag	660
ctgaaggaaac	atgtatccc	atacggttat	attccggaaa	cagaggctga	agctgtggag	720
gcaagcttgg	atgacacgtt	cgccaaagcg	cgtgacgtgc	aggctgcaga	tcctgacaca	780
ctgccc当地	cgtatattgc	attattttgc	ttcccagatg	atatggtaa	aaaatcaaat	840
ccgaatcata	cgcggggcgaa	tgaagtcatg	gaagggcgg	aagtttttat	tttcagccaa	900
tgtgacatga	tcacacgtt	acagtcccg	gaaaacagcg	aaattaaaaat	cgatgaccac	960
gcatacgata	tcgtgtatc	tgcggggcg	attgcctaca	acacaggta	aagaatgtt	1020
ttgattgtt	aaaataacgg	tgcatttgc	aactttgacc	cgactgcgt	ggttggatgt	1080
ccatgc当地	tggctcaaa	tggacctgaa	ccgattaccg	ttggcaccat	tccgcaattt	1140
cagaaaggc	tcatggagca	gcaggtatcc	gttggagaagc	tgactgttga	agcgtggca	1200
gagaaatctgt	tccaaaatgt	gtggcaggcg	ctgatcctgt	caaaaacagt	gccgaacgcg	1260
cgtgtggcaa	gactcatttgc	tgaggatttgc	gtggaggcc	acaaagactt	ctggccttgc	1320
tttgatcaaa	gccccaaacccg	catatcataa				1350

<210> 51
<211> 1584
<212> DNA
<213> *Bacillus subtilis*

<400> 51						
atgatgc当地	aaattcagcg	ctttggaaagc	gcatgttttgc	tgcctgtttt	attattcg	60
ttcgccggca	ttatcgccgg	tatcagcacc	ctctttaaa	ataaaaccc	catgggaccc	120
ctcgccgatc	ctgacgggtt	ttggatc	tgcgtgtata	tcatttgc	gggcggctgg	180
actgttttta	accaaattgc	gctcttatttgc	gccatttggca	tcccggttgc	tttggcgaag	240
aaagctcagg	cacgcgcctg	tttggaaagcg	cttactgtt	acctgacatt	caactat	300
gtcagcgc当地	tatttgcgtt	atggggaggg	gcatttggcg	tcgacatgaa	tcaagaggtc	360
ggcggaaacga	gccccgttac	gatgttgc	ggcataaaaa	cgctcgat	caacatcatc	420
ggagccatct	ttatttcttgc	gattgtcg	tttttgcata	atcgatattt	tgataaaaa	480
ctgccc当地	ttctcgccat	ctttcaaggc	tcaacatata	tcgtgtatgt	ttccttctt	540
attatgtatcc	caatttgcgtt	ggctgtgtt	tatatttggc	cgatgtttca	atcgaaatc	600
ggctcgcttc	aaagcttctt	ggttgttttgc	ggggcgggtgg	gcgttttggat	atacacgttt	660

ttggAACGGA	ttttaattcc	gaccggcctt	catcacttta	tttacacGCC	gtttatttat	720
ggccggctg	tagcggagg	cgggatcgC	acgtattggg	cacagcatct	cgcgaaat	780
tcgaaAGCG	ccaaaccgct	gaaggagctc	tttccgcaag	gcggattcgc	gcttcacggc	840
aactcgaaaa	tcttcggtat	tccgggtatc	gccctggctt	tttatgtgac	agccaaaaaag	900
gaaaagaaaa	aactcgtcgc	agggctgctg	attcctgtca	cactgacagc	gattgtcgCC	960
ggtattacag	agccgattga	gtttacgttc	ttattcattt	caccttctt	atttgcgtt	1020
cacgcccgtc	ttggccgac	aatgtcgaca	gttatgtata	tgccggcgt	cgtcggaaat	1080
atgggaggcg	gactgattga	ggcggtaacc	ttgaactgga	ttccgctctt	tggcagccac	1140
ggtatgacat	atgtgtatca	aattttgatc	gggctctgt	ttacagcaat	ttatTTTC	1200
gtcttcagat	ttttaatcct	caaattcaat	atcgctacac	caggacggg	aaaggatgaa	1260
cagcagggaaa	caaagctata	ttcgaaaaag	gaatacagag	aacggaaaaaa	caaggatgaa	1320
acggcctccg	ctgtgaaac	ggctgatgac	accgcttttC	tgtatattga	agcgctggc	1380
ggaaaagaca	acatcactga	agtcacaaac	tgGCCACCC	gcctcagagt	cagtgtcaag	1440
gatgaaacaa	aggttgaacc	cgacagcgt	ttccgcgcgc	ttggcgcaca	cggcgttgc	1500
aggaacggg	aggcgttca	gttaattatc	ggattaagcg	tgccgcagat	gcgggagcgt	1560
gtggaaaaaa	tattgaatca	ataaa				1584

<210> 52
 <211> 1365
 <212> DNA
 <213> *Bacillus subtilis*

<400> 52						
gtggactga	tcatcattct	attggcgtta	ggtttgctga	tgtttacggc	gtatcgggg	60
ttttctgtca	tattgttgc	gccgatttgc	gcgttattcg	cggtgtct	gacagatcca	120
agccatgtc	ttcctttttt	ttcatcaatt	tttatggaga	agatggcg	ttttatTAAG	180
ctgtatttcc	cagtgtttt	gctcgggt	atttttggaa	aggtcgttga	aatggccgg	240
cttgcggcat	caatcgcgaa	aacaattgtc	cggcttgc	gggcaaaaag	agcgataact	300
gccattgtc	tgatgggtc	tgtcttgc	tacagcgggt	tcagcctgtt	tgttgcgt	360
tttgcgtat	atccttttgc	gaaaaacatg	ttccaagaag	caaacatacc	aaaacgcctc	420
atcccggta	cgattgttt	aggagcttt	acgtttacga	tggacgcact	tccggaaacg	480
ccgcaaatcc	aaaatgtcat	cccgacgtcg	ttttcaaaa	cagacattt	tgccgcccc	540
tggctgggtt	tgatgggcgc	agtattgt	ctggcagctg	ggatgtctt	tttggaaatca	600
aggcggaaaga	aagcgcaggc	atctggcgaa	ggtatggcg	gttttgattc	gcagaatgt	660
cctgctcctg	aatcgattga	gtccgcggct	gaaccggaca	aaagcccgat	tcggcacgccc	720
cttgccttg	tcccgcttat	cctcgtcggt	gcagtgata	aatatttac	catttac	780
ccaaagtgtt	atccgaatgg	atttatTTT	cattccatag	gattaaagga	tttcggcagg	840
cttgatattt	cttcageggc	tgtatTTG	tcggtgaga	ttgcttttagt	gattggcatc	900
atcacaacga	tattatttga	ttggagaagt	gtgtttccc	aattgaagga	agggtgt	960
gaaggaattt	gcggcgcctt	gctggcatct	atgaataacgg	gtgctgagta	cgggttcggc	1020
ggcattatcg	cccgctgccc	ggggtttcat	aagctgagca	gcggaaattt	acataacttt	1080
accgatccgc	ttgtaaatgg	cggcgttacg	acaactgcgc	tggcgggaaat	caccggctcg	1140
gcttcgggag	gaatgggcat	tgcgttaagc	gcatgtcag	aacaataactt	acaggcgtt	1200
caggcttaca	atattccgccc	agaggtatgt	catcgggtca	tttcaatggc	atcaggcggg	1260
atggatatac	tgccgcataa	tggcgcgtt	atcacgttt	ctggccgt	cggtttgac	1320
ccacceggca	tcctatcg	atattttgc	gatcagcgtc	attaa		1365

<210> 53
 <211> 717
 <212> DNA
 <213> *Bacillus subtilis*

<400> 53						
atggggaaaag	tgctgtcatc	aagcaaggaa	gtgcgaaac	tgattcatga	tgggatacg	60
ctgatcgcgg	gagggtttgg	gctgtgcggc	atccctgaac	agctcatttt	gtctataaga	120
gatcaggggag	taaaggattt	aaccgttgc	agcaataact	gcggagtcga	tgactgggg	180
cttggttgc	ttctggctaa	caagcaaattc	aagaaaaatga	tcgcttctt	tgtcggtgaa	240
aataaaattt	ttgagcggca	gttttaaagc	ggagagctt	aggttagagct	ttttccccaa	300
ggaacgctcg	ctgagagaat	tgcgtcaggc	ggtgcaggca	taccgggatt	ttatacggcg	360
acaggcgtcg	gcacccat	agccgaggga	aaagaacata	aaacattcgg	cggccggact	420

tatgtgctgg	agcgaggcat	tacggcgat	gtggcgatcg	tcaaagcgtg	gaaagcggac	480
accatggca	atttgatttt	tagaaaaacg	gcgagaaaatt	tcaatccat	tgccgccccatg	540
gcaggcaaga	tcacgattgc	cgaggcggaa	gaaatcgtgg	aagcaggaga	gctcgatcca	600
gatcacatcc	atacgccggg	aatttacgta	cagcatgtcg	tgcttggcgc	gagccaagaa	660
aaacggattg	aaaaacgaac	agttcagcaa	gcacatcggaa	agggtgaggc	caagtga	717
<210> 54						
<211> 651						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 54						
gtgaaggaag	cgagaaaaacg	aatggtcaaa	cgggctgtac	aagaaatcaa	ggacggcatg	60
aatgtgaatc	tcgggattgg	aatgccgacg	cttgcgc当地	atgagatacc	cgatggcggtt	120
cacgtcatgc	ttcagtcgga	aaacggcttg	ctcggattt	gccccatcc	tcttggaaagga	180
acggaagacg	cggatttgat	caatgcggaa	aaggaaacga	tcactgaagt	gacaggcgcc	240
tcttattttg	acagcgtga	gtcattcgc当地	atgataagag	gcgggc当地	cgatttagct	300
attctcgccg	gaatggaggt	ttcggagcag	ggggatttgg	ccaattggat	gatcccggc	360
aaaatggtaa	aaggatggg	cggcgc当地	gatctcgta	acggggc当地	acgaatcg	420
gtcatcatgg	agcacgtcaa	taagcatggt	gaatcaaagg	tgaaaaaaac	atgctccctt	480
ccgctgacag	gccagaaagt	cgtacacagg	ctgattacgg	atttggctgt	atttgattt	540
gtgaacggcc	gcatgacact	gacggagctt	caggatggg	tcacaattga	agaggttt	600
aaaaaaacag	aagctgattt	cgctgtaa	cagtctgtac	tcaattctta	a	651
<210> 55						
<211> 774						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 55						
atgagaaaaac	aagtgc当地	ggtgacaggg	gctgccggcg	gaatcagatt	cgaaatcgca	60
agagaattcg	cccgaaagg	tgccagcgtc	atcgatccag	acctccgtcc	ggaagcatgt	120
aaaaaagcag	cctccaaagct	tgcagaagaa	ggcttgc当地	cggcggccat	tccgtatgt	180
gtgacaagg	aagcgcaagt	tgctgatcag	gtgaaacgtca	tccaaaaaca	atacggcgcc	240
ttggatattc	tggtaaccaa	tgccggatt	cagcacgtcg	ctccgattga	agagttccg	300
acagacacct	ttgaaacagct	gatcaaggc	atgctgacgg	ctccctt	tgcaatgaag	360
catgttttc	cgatcatgaa	aaaacagcg	tttgc当地	tcattaat	tgcgtctgtt	420
aatggattag	tggctttgc	agggaaatcc	gatccatata	gccc当地	cgccgtcatt	480
ggactcaca	aagtaggggc	gctgaaaggc	gccc当地	gcataacagt	aatgcgtc	540
tgtccgggtt	atgtcgat	ccagcttgc当地	cgcaatcagc	ttagcgatct	atcgaaaact	600
agaaatgtcc	tttacgactc	tgtacttgc当地	caagtcat	ttccgcttgc当地	gccgcaaaag	660
cgactgc当地	ccgtcaagga	aatttgc当地	tatgc当地	tttggcaag	cgagaaggcg	720
aagggc当地	ctggcaggc	tgtcgtcc	gatgggg	acaccgcaca	atga	774
<210> 56						
<211> 1788						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 56						
atgtcacggc	tccttgc当地	tttatgcca	aagcagagga	actggccgca	gccat	60
ccaaacggacc	gatcgctgc当地	cgtcaggc当地	aatttgc当地	caataaagg	ttggagacag	120
atcttgc当地	aggccttgc当地	attgaacaaa	aagcgtatga	acaaaccatc	ccgacaaaag	180
acaggagaga	aggccttgc当地	gccttcaag	aaaaaagacg	ggccgtatac	aagggaat	240
aaaagggagg	caatgc当地	ggattatgaa	aaggaaacgaa	cagaacggc	tgaacggatt	300
cgaaaagggc	gagcggaaaa	gtatcatca	agcaatcggg	aaaaagg	gctcttgc当地	360
agagacggc	tttcccttct	cttgacgat	gacattgagc	tagaagacgc	ttttttgc当地	420
gaatgtatgt	cagacgggct	tccgc当地	ggagttgtaa	ccgctatcgg	aaaaatcg	480
ggccaaaccg	tttgc当地	ggc当地	tcaacagtga	aagcgggg	atggggagca	540
aaaacagttg	aaaaatcat	cagaattca	gaaatcgcc	aaaaattaa	ctgtccgc当地	600

atttatttag	tcgattcggc	aggcgcccga	attaccgacc	aatcaatgt	ctttccaggg	660
agacgcgtg	cagaagaat	tttttacaat	caagtcaaat	tatcgggacg	cattccgcaa	720
atctgtctgc	tttcggacc	atctcgccga	ggaggcgctt	atattccgc	cttctgtat	780
atcgctgtt	tggtagacgg	taacgcctcc	atgtatttag	gttcgccaag	gatggcgaa	840
atggttattg	gagaaaaagt	gtctctcgaa	gaaatgggtg	gcgcccgtat	gcattgctca	900
atctccggct	gcggagatat	tcttgcagaa	actgaagaag	aagccataca	gctggtcgg	960
gcttatttgt	cttactttcc	ggcaaattt	caagaaaaag	cgcccattca	tgagaaacgc	1020
ccgccaaaac	acttcgaaac	tccgcttgcc	gacgtcattc	cgcaaaatca	aaacgcacct	1080
tttgatatgc	atgagctcat	tgagcggtc	atagatgaag	actcatttt	tgagatcaaa	1140
gccttatttgc	caccggaaatt	attgacgggc	ctcgcacgaa	tccacggaca	gcctgtcgcc	1200
attgttgc	accagccgaa	ggtaaaagga	ggcgtcttat	tccacgattc	agcagacaaa	1260
gcggctaagt	ttattacctt	atgtacgct	tttcataatcc	cattgctgtt	cttagccgat	1320
atccccgggtt	ttatgattgg	cacaaaagta	gaacaggctg	ggattatcag	acacggagcg	1380
aaaatgattt	ctgcgtatgtc	ggaggcaact	gttccaaaac	tctctgtat	tgtccgaaaa	1440
gcttacgggg	cggggttgta	tgcaatggca	gggcccgcatt	ttgaaccgga	ttgctgtcta	1500
gcgcctccaa	ccgccccaaat	cgccgtcatg	ggccctgagg	ccgctgtaaa	cgctgtctac	1560
gctaaaaaaa	tcgcccagact	gccagaagaa	gagagagccg	catttatacg	cagcaaacgg	1620
gaggaataca	aaggagacat	caatatctac	cgtctggctt	cagaaatgtat	cattgatgct	1680
gttatccag	ccaattcgct	gcgtatgag	ctggccaaac	ggctcaaggc	atacatgaca	1740
aaggaaatga	catttaccaa	tcgaaagcat	ccggtttatac	cggtgtaa		1788

<210> 57
 <211> 783
 <212> DNA
 <213> *Bacillus subtilis*

<400> 57						
atgggagatt	ctattctttt	tactgttaaa	aatgaacata	tggcgttgat	caccttaaac	60
aggcctcagg	cagcaaatgc	tctttcagcg	gaaatgctta	gaaacctgca	aatgattatc	120
caggaaatttgc	aatttaactc	aaacatccgt	tgcgcatcc	tcacaggcac	cggtaaaaaa	180
gcgttttgc	cagggcaga	cctgaaggaa	cggataaaaac	tgaaagaaga	tcaggttctg	240
gaaagtgtat	ctctcattca	aagaacggcg	gctttacttg	atgccttgcc	gcagccggtc	300
atagctgcga	taaatggaag	cgcattaggc	ggcggactag	aattggcatt	ggcatgcgac	360
cttcgaatcg	caactgaagc	agctgtctg	ggacttccgg	aaacagggtt	agctattatc	420
ccgggcgttgc	gagggaccca	aaggctgccc	cggctgatttgc	gcagagaaaa	agcaaaagaa	480
ttcatttata	cagcagacg	cgtgaccgca	cacgaagcaa	aagaaatcgg	cctttagag	540
catgtcacgg	ctccattgttgc	ccttattgcca	aaagcagagg	aactggccgc	agccatttct	600
gccaacgcac	cgatcgctgt	ccgtcaggct	aaatttgcaa	tcaataaagg	attggagaca	660
gatcttgcta	cagccatttgc	gattgaacaa	aaagcgtatg	aacaaaccat	ccgcacaaaa	720
gacaggagag	aaggcatttca	ggcatttcaa	gaaaaaaagac	ggccgtata	caagggata	780
taa						783

<210> 58
 <211> 900
 <212> DNA
 <213> *Bacillus subtilis*

<400> 58						
atgccccat	ctaaaaaaagt	gacaatcaaa	gaagtccggcc	cgcgtatgg	cttacaaaaac	60
gagccccgtt	ggatcgcaac	agaggataaa	ataaacctgga	tcaaccagct	ttcccgagaca	120
gggctgtcg	atattgaaat	cacatccttc	gttcaccccgaa	aatggattcc	ggcgcttcga	180
gatgtatcg	atgttagcaaa	aggcatcgac	cgagaaaaag	gggttaacgta	cgcggcactt	240
gtcccgat	aaagaggact	ggagaatgca	cttgaaggag	gcattaacga	ggcttgcgtt	300
tttatgtccg	ccagcgagac	gcacaacaga	aaaaacatca	ataaaatccac	ttctgaatcc	360
ctccatatac	tcaaaacaagt	aaacaacgcac	gcacaaaaag	caaaccctcac	aacaagagcc	420
tacctctcg	ctgttttgc	ctgtccgtac	gaaaaagatg	tccccattga	acaagtatttgc	480
cgccttcag	aagcttatttgc	tgaatttggg	atttctgttgc	tgtcgcttgg	agatacgatt	540
ggagcagcta	atccccggccca	agtggaaact	gtacttgc	ctcttttgc	acgattcccg	600
gctaataaaa	ttgccccctgca	ttttcatgt	acgagaggaa	ccgctctggc	caacatggtc	660
acagcactcc	aaatgggcat	cacgggttgc	gacggctcgg	caggcgggct	tggggatgc	720

```

ccatatgcgc cagggtcatc agaaaaacgcc gcaactgagg atatcggttgc catgcttggaa
cagatggata tcaaaaacaaa tgtaaagcta gaaaaactgc tatctgcggc caaaatggatt
gaagaaaaaaa tggccaaacc gctgccgagc agaaattttac aggtgtttaa atcatcttga 780
840
900

<210> 59
<211> 1335
<212> DNA
<213> Bacillus subtilis

<400> 59
atgtttacaa aagtactgtat cgcccaaccgc ggtgaaaattt caatggaaat tatccgaaca 60
tgcagccgtc tcggcattaa aacgggtcgct gtttattttag aagcagacaa ggacgcgcccc 120
catacaaaaag ccgttacaga ggcatttttgc atcggggat cgagatcgat tgaaagtat 180
ttaaatatacg agagaatcat aaagacggcg aaaaaagcaa aagccgacgc gatccacccg 240
ggatatggat tggatcaga aaacagccgg ttcgctgaac gctgcaagca agaaaaacatc 300
gtgtttatcg gacccccc tggatatcattt gcaaaagatgg gcagaaaaat tgaagcgcga 360
aaagcaatgg aggtgcagg tggccctgtg gtgcccggcg tttctgaatc cctcggagat 420
atagaggcag cctgcccac cgcaagtcaa atcggctatc ctgtcatgt gaaagcttca 480
gcggggcggag gcccgttccgg aatgcggcg ttttttttttgc acgggtctat gttatagaa 540
tacggggaa aaaaaaaagcg cgcggcgat ttttttttttgc acgggtctat gttatagaa 600
aaagtttttgc aacatgcgcg ccacatcgat gttcagctt tggccgatca acacggccat 660
acagtacatc tggatcagaac tggatgtctt gttcagggcg gcccacaaaa agtcatgtt 720
gaagcaccgt ctccatttttgc agacgttccaa ctaagaatgtt agatcggtca aacagcggta 780
aaagcagcga aggcaatcgat ctatcgaaat gcaggccacca tggatatttttgc agttgacac 840
aaacaaaattt ttttttttttgc cggaaatgtt acggactgtc aagttgttca cccctgtact 900
gaagaaaatcc caggccttggat ctttagttggat cggcgatgtc ggattgtctt gggccatata 960
ctcacattctt cccaaaaaaaatcc cttccatcgat gggccatataatc tggatgttca 1020
gcggaaagatc ccaagacctt cttccatcgat cttccatcgat gggccatataatc tggatgttca 1080
gaccaaaaaaatcc cttccatcgat gggccatataatc tggatgttca 1140
tatgacccgtt tggatgttca gtttggatgttca aaggccaaa ccagaacaga agcaatttttgc 1200
aaactagaga cagcgcttcg cggatcgatgtt gtttggatgttca aaggccaaa ccggccatata 1260
ctcatacagg ctggccaaac aaaggcattt aaggccaaa ccggccatataatc tggatgttca 1320
aaacagcacc tataa 1335

<210> 60
<211> 1650
<212> DNA
<213> Bacillus subtilis

<400> 60
atggctgaac tcatccattt cacaatcgcc aggctgttgc aacaaacacgc tgatcggtat 60
cccgatcgag atgctgttgc gtttccatcgat cggatcgatgttca cggatcgatgttca 120
gacagtctgttccatcgatgttca cggatcgatgttca cggatcgatgttca 180
gcccgttccatcgatgttca cggatcgatgttca cggatcgatgttca 240
cagtcgttccatcgatgttca cggatcgatgttca cggatcgatgttca 300
aagatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 360
ttgtttaaagatccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 420
tatccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 480
aaatctgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 540
ggcatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 600
gaagagagaaaatccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 660
acgacagggttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 720
aatatcgatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 780
tttcactgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 840
ataccctgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 900
acagtgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 960
gcataatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1020
gtgtatggatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1080
accgaaggcttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1140
gaaacaaccgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1200
caagaagttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1260
aaagaggcatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1320
aaagaggcatgttccatcgatgttca cggatcgatgttca cggatcgatgttca cggatcgatgttca 1380

```

ggcttattata aagacaaaaga tgcgaccaga aaagcaatca atcatgacgg atggctgttt 1260
 accggagatc ttgctgtcat gnatgaagac gggtaactgcc gcattaccgg aagattaaaa 1320
 gatatgctca tcagaggcgg cgagaacatt tatccgcggg aaattgaaga atttttatac 1380
 cagcatcccg ctgtttttaga tgtacagggtg gttgggtgtc ctgacgccaa attcggggag 1440
 gaagctgcag cctggattaa actgaaagac gtaaaaagcg tttcacctga tgagcttaaa 1500
 gccttattgca aaggaaaat cgccgcac aaaattccgc gttatgttat ttttacgat 1560
 gactatccga tgacggccctc aggcaaaatt caaaaatata aactgcgaga aaaaacgatt 1620
 gaaatgttca acttatcatc aagtcaatga 1650

<210> 61
 <211> 1014
 <212> DNA
 <213> *Bacillus subtilis*

<400> 61
 ttgaaaacga taacaattgc agctgaagaa gcaaaggaac tcgttggca aaagctggac 60
 ggtgcgggtt tgaatgaacg agatgtgaa aaagtggcag atgttctcg gcacgctgat 120
 ttgcgcatttgc tacattcgca tggcgctg cacacagaac actatgtgaa caggcttta 180
 gcgggaggga tcaatcctgg ggcacagcct gttttaaag agacggggcc tggaccggg 240
 gtgttgcacg gagacgatgg tttcggtcat gtgaattgcg acatggcgat ggaccatgca 300
 attgacatgg cgaagaaaaa aggagtcggc atggtcacgg ccgtaaacag cagccattgc 360
 ggagcgctaa gctattttgt gcaaaaagcg gctgacgaaa agctgatcg aatggcaatg 420
 acgcatacag acagtatcg tgcatttgcgggggaggaa ctccattttt agggacaaat 480
 ccgattgtt acggagttc ggctaaagcat aaaaacccgt ttatcttgcgat tatggcaca 540
 tccaaagtgg cttttggaa gattctgcag gcccgtgaag agggcaaaa aattcctgaa 600
 ggatggggag tcgatgaaaaa cggagaagca gtaactgatc ctgacaaggat cgtctcaatt 660
 tcaacattcg gggcccgaa aggctatgg ctatcgatgg tagtggatgt gtttccgga 720
 ttgctggcgg ggcggctt tggccctcat attgccaattt tgcataacgg ccttgatcaa 780
 aaaagaaaagc tggggcattt cgtttgcgcg atcaatccat cttttttac tgactggat 840
 acgttttag agcagatggc tgccatgatt gatgaactgc agcaatcacc gccggctgtt 900
 ggattcgaaa gagtgtatgt gcccggcgcg atcgagcgcg tgcataaaga aagaataaag 960
 aaaaacggaa ttctatcgc ccggagcgtg tatgaattct taaaagcag gtga 1014

<210> 62
 <211> 1020
 <212> DNA
 <213> *Bacillus subtilis*

<400> 62
 atgaaagcgg ttcaagtgcg aaaagcgtat gatctggta cagcgaggt gaagaagcca 60
 gttcttcaa aggatgtga agtgctcgtg aaagtcaacg gactcggcat ttgcgggtca 120
 gacatgcaca ttatcatgg aacgaatccg ctcgctaccc tcccgagatg catcgacac 180
 gaggttaacgg gacaagtggc ggcagggtt gcaatgtac agacgcctaa acccggtat 240
 catgtggta ttgagccat ttcttattgc gatcgatgt atgcctggc caaagggcgg 300
 ccgaatgttt ggcggcaagct ttctgtatgg ggcgtacatg aggacggagg catgcggaa 360
 tatattgtgc ttccggaaag acagcttcac ggcgtctcaa aggacttgcg ttgggagaa 420
 gcagtcatttgc ccgagccttac gatgtggc gcccaggcag tgcataaaga ccaggtggaa 480
 aaaggtgata ccgtcctgat ccaggagcg gggccatcg gatctgtgtt gttaaaatg 540
 gcaaaaactgg cggcgctgc tgcattgtatg actgacttgc acaacgagcg gctggcattt 600
 gcgaaagaaa acggcgccga tgctgttgc aatgtccaa cagaacatgt tgccgagcgg 660
 gtccttgcatttggacttggaa tgaaggagca aacgtggta ttgatgtgtt ttgcctggc 720
 gagacttttgcacttcaat tgaggctgtc tgaccggcgg gacatgtgtt tgcgttggaa 780
 ttgtatggaaa gagcggtca gatttctcag ctgccaattt caaaaaaaga agtcacgata 840
 accggatccc gattgcagac caatcgtttt caaaaagttg tagagctttt gaatggaggc 900
 cggtaatgc ataacgggtt ggtgacccat acattttcag ttgatgacgt tcatcatgca 960
 ttctcgttta ttaaggagca tccagatcag gtgcggaaag ccgtcattcac gtttgcattaa 1020

<210> 63
 <211> 1080

<212> DNA

<213> Bacillus subtilis

<400> 63

atgaatatga	cattccgatg	gtatggacga	ggcaacgata	cagtcacact	tgaatacg	60
aagcaaattc	ccgtgtcaa	aggcatcg	tggctctcc	atcaaaagcc	cgtcggc	120
gtgtggaaa	aagaagaaat	cagagccgaa	actgaatata	ttcaatc	tggtttcat	180
gctgaagtt	tagaaagcgt	aatgttcac	gaagcgatta	aacttggaa	cgaagaacgc	240
ggccgtata	ttgaaaacta	caagcaaacg	atccgcaacc	ttgcggatt	tggcgtgaaa	300
gtgatctgt	ataatttat	gcccgtttt	gattggacac	gcacggacat	ttccggccg	360
ctagaagatg	gatcgaccgc	tctgtttt	gaaaaggcca	aggtggaaag	ccttgatc	420
caagagctga	ttcggacggt	ggaggaagca	tccgacatga	cactgcccgg	tgggagccc	480
aaaaaatgg	ctcgatcaa	agagctttt	gctgcctaca	gaacggcgt	tgaagaaaag	540
ctatgggaca	attatcatt	cttttgcag	gaaattctt	ctgttgctg	ggcctatgg	600
gttcaaattg	ccattcatcc	ggatgaccgc	ccgtggccga	tttgcgact	ggcgccatt	660
atcacaggag	agccaagcta	taagaaactg	cgggcgat	cagattcacc	gtctaattgt	720
atcacccctt	gtacagggtt	aatgggagcc	aatcccgt	acgacatgg	ggagatcg	780
aaaacgtatg	ccgcgcatcgc	tccatttca	catattcgca	atgtaaaat	ttatgagaat	840
ggcgatttta	ttgaaacatc	tcatttaaca	aaggatgg	cgatcaacat	tcaaggcgt	900
atggaagaac	tgcataagca	ggattacgaa	ggatatgtca	gacggatca	tggcgc	960
cttggggcg	agcaatgccc	cccggat	ggcttatacg	atcgggact	tggcatcatg	1020
tatttgaacg	ggctgtggg	cgcttatgaa	gcaatggcaa	aaaaagaggt	ggcataatg	1080

<210> 64

<211> 837

<212> DNA

<213> Bacillus subtilis

<400> 64

atgatccgc	tgcatacgagaa	cctggctgg	aaaacggctg	tcatcactgg	cgccagccggc	60
gtgtttgct	ctgcgatggc	ccggagcta	gcccgtcatg	gcatgaaggt	ggcgatttt	120
aatcggacgg	ctgaaaaagg	ccaagcggc	gtgaaggaga	taacggccgc	tggcggcaca	180
gcgtgcgt	ttgtcgccg	tgtgctgg	aggatgtc	tggagccggc	aaaggaagac	240
atccttgcc	aatttggcgc	tgttgatct	ttaattaacg	gggctggcgg	caatcatc	300
gacgcgataa	ccgatgtg	gacatata	gaagccggag	aaggccaa	ctttttgat	360
atggatgaga	ggggcttt	aactgtatt	tccaccaact	tcaccgg	gtttctgg	420
tcgcaagtgt	ttgttaaa	actgctg	gcggattc	ccgcgat	caacctt	480
tccatgagt	tttattt	tatgac	gttccgg	acagtgc	gaaagcat	540
atcaataatt	ttacgatgt	gatggctt	catttgc	aaacccgg	gcgggt	600
gcgattgccc	caggttctt	tctgaca	aaaatcat	atctgct	caaccaagac	660
ggaacgttca	ccagccgatc	tcacaa	atttgcgg	caccgat	gcgttc	720
aaaccggagg	atttgcgg	tacgct	tggctgg	atgaatc	ttccgg	780
gtcaactgg	tcaccgtt	tgtcgat	ggattt	tttattc	agg	837

<210> 65

<211> 1269

<212> DNA

<213> Bacillus subtilis

<400> 65

atgttttca	aagataagct	tcccgtt	ctttttt	tcctggcagg	ggtgattaat	60
tacctggatc	gctcggcg	ttccatt	gtcctt	ttcaggat	tctcacatt	120
tctgcccac	aatgggctt	gatttc	agttttc	tagttat	catttt	180
tttcttgg	gcgtggc	cgaccg	cgat	ggggcaaa	tgac	240
gttgg	cgctgtt	cgagc	gtc	ggcc	ttgg	300
attatac	ttctt	aatggg	ggcc	cgcc	cggc	360
gtgaaca	ggtccc	gacc	gctc	gtta	caac	420
acgccc	gggg	ggcc	ggct	tcgg	acgg	480
tggaa	cctcg	atag	tgat	tg	ggcgtt	540
aagttt	aaagcc	gcaag	gacg	cacc	ggcag	600

acgtctcccg	gagaaaaaat	tccgctcacc	ttttacctga	agcaaaaaac	agtcctgttc	660
acggcggtcg	ctttttcgc	ttacaactac	atcccttct	tcttttgac	atggtttccg	720
agctatcttgc	tcgacgagcg	gggattaagt	gttgaatcga	tgagtgtcat	cacggtcata	780
ccgtggatttgc	tagatttat	cgggctggct	gcggggggat	ttgtttctga	ctatgttac	840
aaaaaaacgg	cccgaaaagg	tgtgctgttc	tcgcgcagg	ttgtgcttgc	cacgtgttg	900
ttttcatcg	ctgtcctgat	tggtttgcc	gggcttgg	caacgactgc	gggggctgtc	960
actcttgcgt	ctctgtcagt	gttcttctt	tatttgcacc	gtgctatcta	ttgggctgtc	1020
attcaagatgc	tgggtgatca	aaacaatgtc	ggttctgttgc	gcggcttcat	gcatttcctc	1080
gccaacacgg	cagaattat	cggcccggt	ttaaccggat	ttattgttga	ccaaacagggc	1140
acgtttctgc	gagcatttttgc	gcttgcgggt	gggctggctg	tcttcgttc	acttgctgtg	1200
attcggtttgc	tccgtccaat	cattggtaag	ccagcgggaa	cagaagctga	gaatcctgtg	1260
	tcttattaa					1269

<210> 66
 <211> 705
 <212> DNA
 <213> *Bacillus subtilis*

<400> 66						
gtgcgcacatcg	ggggttttgg	gacaggacgt	atcgccgcgg	gcattgattt	cagcttgcattc	60
cgcaaacacc	ctaaaatctt	ttggggatac	agcgatatta	cgtttttaca	tactgcccatt	120
catcaaaaac	caggcttgc	cactttccat	ggcccgtatgc	tcagcacgg	tattggcatt	180
gacgacgttc	accgcgtac	aaaagcgtca	tataaggcgc	tcttcagga	gacggaaattc	240
acctatacag	aagagcttgc	tccgctgacc	gagcttgcgttgc	ctggaaaagc	ggaaggcgg	300
cttgcgggg	gaaatctgtc	tttgctgacg	tctacactgg	gcacgcatt	tgaaatttgc	360
acgagagggaa	agcttctgttgc	tattgaagat	attgacgagg	agccttatac	aatcgacccg	420
atgctgaatc	agctgaaaat	ggggggaaag	ctgacggacg	cggcgaaat	tctagttgt	480
gattttcaca	atttgttccc	ggtgaagcga	gagaagtctc	tctcgcttgc	gcaggtgtcg	540
gaagactata	ttatttctgc	ggcaggcct	gctctgagag	gattttaaat	cggccactgc	600
tcgccaagta	ttggcggttcc	gatcggtgc	aaagctgcta	tgaatacagc	agaaaaaaca	660
gccgttaatag	aggcggggt	ttcagaaggg	gctgtgaaga	catgaa		705

<210> 67
 <211> 1101
 <212> DNA
 <213> *Bacillus subtilis*

<400> 67						
atggaaaatca	ttcgaatcga	aacaaggccg	atcgctgtcc	cgctgacaaa	gccgtttaaa	60
accgcacttc	gcactgtgt	tacggctgaa	tcagtcata	taaggattac	ttatgacagc	120
ggtcgcgtcg	gatggggaga	agcacccccc	acgttagtga	ttacaggaga	cagcatggat	180
agcattggaaa	gtgccatcca	ccatgttgc	aaagccggat	tgcttggaaa	aaggctggcg	240
ggctatgagg	ccattctgc	cgacatccag	catttctta	cagggaaat	gagcgcgaag	300
gctgctgttag	aatggctct	atacgacggc	tggcgcaga	tgtgcgggt	gccgctttat	360
caaattgttgc	gcggatatacg	agatacgct	gaaacagatt	atactgtcag	tgtcaactca	420
cctgaagaga	tggcagctga	tggcggaaat	tatctcaaa	aaggcttca	aacgctgaaa	480
ataaaaggctcg	gaaaagatgc	tattgcaca	gatatgcggc	gtatccagga	aatcagaaaa	540
cgtgtcggt	cagctgtgaa	actgcgttta	gacgctaattc	aggggtggag	gccgaaggaa	600
gcggtaactcg	ccattcgaa	aatggaggat	gccccctag	gcattgagct	tgtcgagcag	660
cctgtccata	aagatgtatc	cgctgggtt	aaaaagggtg	cagatgcac	agatacggcg	720
attatggctg	atggaaagggt	ttttacacc	cgccaggcg	tcgaagttct	gcaaaaccgg	780
agcgcagact	tgtcaatata	taaattgtat	aaagcggggcg	gcatcagcgg	agcagagaaaa	840
attaatggca	tggcgaggc	ctgcgggttgc	gagtgtatgg	tcggcagcat	gatcgaaacg	900
aagctggca	ttacggccgc	ggcgcat	ggggcaagca	agagaaaacat	cacacgctt	960
gattttgacg	cgccgctgtat	gctgaaaacat	gatgttattca	atggcggcat	aacatatacg	1020
ggcagcacga	tttcgtatgc	tggcaaaac	ggcctcgaa	tcatcggttgc	tgcgcttttgc	1080
aaagggggaaa	aagagcaat	g				1101

<210> 68
 <211> 891

<212> DNA
 <213> *Bacillus subtilis*

<400> 68

atgatgcaca	ctgtcatatc	agcagtggcc	aacatctgga	cagcgctga	ttcacacctcg	60
ccgtctgatc	aattcatgct	tcaaccgact	gtaatgatca	gagactggct	ggagcgcattg	120
acgtatgatg	aacggcttgg	attatgtaca	gacaatgtaa	tccaaactca	ggttctcttt	180
ggcgaaaagg	tacttgtac	ggcggAACAG	ggggatggg	tttctgtat	cgtgcctagc	240
cagccatccc	gaaaggatcc	gCGCGGatac	ccgggctgga	tgaaaaagta	ccagctgaa	300
aaaacaaagc	ccatccatac	acaacacgat	gtgatgatca	gcaaaccctgc	tgcccttttgc	360
tacagaagca	atggggaaaa	ggagatcgaa	ttaagctttt	tgacagttct	gccccttatt	420
gcaaaaagaaa	acggatattt	taaggttgc	accgttttttgc	gggaaagggtt	tgtgaggca	480
agtgtatgcag	tgcctgtcag	ccaacagaaa	gggactgctg	aagacatcat	tcaaaccgggt	540
gcgttttttc	ttggccttcc	ctacctgtgg	ggggggatca	gcggggtttgg	gtttgatgc	600
tccggattta	tgtacagtat	atthaaggcg	aatggataca	gcatcccccg	tgatgcggga	660
gatcaggcta	aggcaggggaa	ggttgcggcc	cttgcgtat	tgaaaagccgg	tgatctgtcg	720
tttttgctt	atgaggaagg	aaaaggagcg	attcatcactg	tcggctgtat	tgttaggcggc	780
gggaaaatgc	ttcattctcc	aaagacaggg	aagtcaatcg	aaatcctcac	attaacagag	840
acaatctatg	aaaaagaatt	atgtgcggtg	cgccgctgtt	tttcagaata	a	891

<210> 69
 <211> 984
 <212> DNA
 <213> *Bacillus subtilis*

<400> 69

atgaggcgac	tgcctttgtt	agaggtcagc	cagctaaaaa	tgcattttga	cgcaggggaaa	60
aaggcgacag	tcaaagctgt	cgacggggtc	acctttcaga	ttcgtgaagg	agaaacgttc	120
gggctagtcg	gggaatcagg	gtgcggggaaa	tcaaccctgg	ggagagtgt	gatgcgcctt	180
tatcagccga	cagaaggaaag	cgtgacatac	cgcggcacaaa	atcttcatgc	actaagtgaa	240
aaagagcagt	ttgccttcaa	ccgcaaaactg	cagatgattt	ttcaggaccc	ttatgcttca	300
cttaaccgc	gcatgaccgt	tcgagaaaattt	attttggagc	cgatggagat	tcataatctc	360
tacaatacc	ataaagcactg	gcttccgtc	gtggacgagc	tgcttgaggc	agttgggctt	420
caccccgatt	ttggcagccg	ttatcccat	gaattcagcg	gcgggcaaaag	gcagagaatc	480
gggattgcga	gagcactgtc	gctgaatcct	gaattttatcg	tggcggacga	accgatttct	540
gcacttgcgt	tctctgttca	agcgcagggt	gtcaaccctgc	tgaagcggct	tcaaaaagag	600
aaaggcgcta	cgtttttattt	cattgcccatt	gatcttcga	tggtgaagca	tatcagtgcac	660
aggatcggtg	ttatgtactt	aggacacatg	atggaaaattt	cagagagcgg	caccttgcatt	720
cgtgaaccgc	tccatcccta	tacaaaggcg	cttttgcct	cgattccgat	tccagatcct	780
gaattggagg	acaagcgtga	gcgtatttctc	ttgaaaagggg	agctgcccag	cccggtcaat	840
ccgccaagcg	gctgcgtgtt	tcgtacccgc	tgtccggagc	gatgcctgaa	tgtggagaat	900
ctcgccccca	gcttcaagaa	atcgaacccg	gcccgtttgt	cgcttgccat	ttgtatcgaa	960
atgctgaaac	gaaggaaaaaa	gtaa				984

<210> 70
 <211> 1416
 <212> DNA
 <213> *Bacillus subtilis*

<400> 70

ttgaaaaaca	aatggtataa	accgaaacgg	catttggaaagg	agatcgagtt	atgaaaggac	60
gttccggaaag	agaaaatggaa	cgattggctt	tggcagctga	cacacactgt	agaacgtta	120
gatgatttaa	agaaaagtcat	taatctgacc	gaggatgaag	aggaaggcgt	cagaatttct	180
acccaaaacga	tcccccattaa	tattacacct	tactatgtt	ctttaatgg	ccccgacaat	240
ccgagatgcc	cgttacgcatt	gcagtctgt	ccgctttctg	aagaatgtca	caaaacaaaa	300
tacgatctgg	aagacccgct	tcatgaggat	gaagattcac	cggtacccgg	tctgacacac	360
cgctatcccg	accgtgtgt	gtttctgtc	acgaatcaat	gttccatgt	ctggcgctac	420
tgcacaagaa	ggcgcttttc	cggacaaatc	ggaatgggg	tccccaaaaaa	acagttgat	480
gctgcaattt	cttataatccg	ggaaacaccc	gaaatccgcg	attgtttat	ttcaggcggt	540
gatggcgatc	tcatcaacgc	ccaaatttta	aatatattt	aaaagagct	cgccagcatt	600

ccgcatctgg aagtcatcag aatcgaaaca agagctcccg tcgtcttcc gcagcgcatt	660
accgatcatc tggcgagat attgaaaaaa tatcatccgg tctggctgaa cacccattt	720
aacacaagca tcgaaatgac agaagaatcc gttgaggcat gtgaaaagct ggtgaacgcg	780
ggagtgcgg tcgaaatca ggctgtcgta ttagcaggtt ttaatgattc ggttccaatt	840
atgaaaagc tcatgcattc cttggtaaaa atcagagtcc gtccttatta tatttacca	900
tgtgatctgt cagaaggaat agggcatttc agagctcctg tttccaaagg tttggagatc	960
attgaagggc tgagaggtca tacctcaggc tatgcggttc ctacccctgt cggtgacgca	1020
ccaggcggag gagtaaaaat cgcgcgtc ccaaactatg tcctgtcaca aagtcctgac	1080
aaagtgtatct taagaaattt tgaagggtgtt attacgtcat atccggaaacc agagaattat	1140
atccccaaatc aggccagacgc ctattttgcg tccgtttcc ctgaaaccgc tgacaaaaaag	1200
gagccgatcg ggctgagtgc cattttgtt gacaaagaag tttcggttac acctgaaaat	1260
gtagacagaa tcaaaggag agaggcatac atcgcaaaatc cggagcatga aacattaaaa	1320
gatcggcggtg agaaaagaga tcagctaaaa gaaaagaaaat tttggcgca gcagaaaaaa	1380
cagaaagaga ctgaatgcgg aggggattct tcatga	1416

<210> 71
 <211> 828
 <212> DNA
 <213> *Bacillus subtilis*

<400> 71	
atgctcaagt caataaaagag tagcgggtgc acagcagttt tggaccatga cggctttaat	60
aaacgaatca gagtggttcg ttatgcggg gccattgaga aggcctcgcc ggatatcg	120
gcagcggcaa aagaagagaa tgcagaaaaa atcattgtct atgcgaagca gcatgtgag	180
ccgatccttgc ccaaacaattt atttgcggcg gagggttatac taaagggtta ttatctcg	240
cattcggtt gtgtcatgtt acgttaccc ttccgggtt gggacaaaac agattttat	300
acagaggaac aggagatcat cgaagccata tatgcacag cgcgggtt tcgcaacgac	360
agtacacccg ttttacgtt gagaaaaagca gaaacaaaacg acatgtacca gctatcgat	420
ctgtataaaa aagtattccg cacgtaccc accccggat ttgacccgc ttatattgaa	480
aagacgtga atgcaaaatc ggtgttattt atcatgtttt atcatgaccg cctgatcagc	540
gcagcaagcg cagaaatcaa tccagagctt gggcatcgaa aaataaccga ttgcgtgt	600
ctggcgaaat atcgccggca ttctttaaca agctttttaa tcgaggcggtt agaaaaagaa	660
atggctggag agatatacg tcatgtgtt tctctcgccc gtgcttcgtc ttttggatg	720
aatgctgtgt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt	780
atagccgaag gccttggaaaat catgaatatt tgggtgcacaa aactgtaa	828

<210> 72
 <211> 654
 <212> DNA
 <213> *Bacillus subtilis*

<400> 72	
atgggcttgg gagtagcaga aagagaacag attgcaaaac ggcgtgtac taaaattaa	60
cagggcatga ttgtaatct cggatcggtt atcccttcct tggtaccgaa ctttttgaag	120
cctgacatgc aggtcatgtt tcaagcggaa aacgggtgtcc ttggcattgg agaaagtccc	180
gaaaaggggag aaggaggatgc gcatttatgc aacggccggg gatattctgt ccgcgtgt	240
aaaggggctt ctttttttgc tacaaccatg ttttttgcga tgatcagaaa aggcaaaatt	300
gacattacga ttttaggcgc cctgcagggtt agccaatcag gagatttggc aaattggctt	360
gttccgggaa aaaaggtgcc tggatgggc gggggatgg agcttgcaca aaaagcgaaa	420
aaagtgggtt tcgtcatgag tcatacagat caaaaggaa ggcctaaattt aacagaaaaga	480
tgtacgtgc cattaactgc tgcaggctgt gtatgttgc ttattaccga aaaagcggtt	540
cttgaggctcg atagccatca cttcatatca aaagagctga tgaatggctc gacaatcgat	600
gaggtgacga ggctgacaga agctgaaatc aaaatagata tggctttttt ttaa	654

<210> 73
 <211> 690
 <212> DNA
 <213> *Bacillus subtilis*

<400> 73

atggcgccat	ttcaaaaagc	aatcagcatt	gacacagcaa	ttgcagatgt	tcgggatgga	60
tcgggtctga	tgttggcg	tttggggga	gtcggtcgc	ctccttcatt	gattgaagcg	120
atattggaca	gcgtgtaac	ggatttgact	gtgatttgca	atgacgcccgg	tttcccgat	180
atcggaatcg	gcccgttat	tgttaatcaa	cgggtcaaaa	ccctgatcgc	ctcgcatatc	240
ggttccaatc	cagtagccgg	aaaacagatg	acagagggga	cgttagaggt	tcaatttca	300
cctcaggaa	cgcttgcgg	acggattcgc	gccggcggag	cgggcttgg	cggtattta	360
accgacgtgg	gcattgataa	tcaaattgtt	tgcggaaaaaa	aggacatcgt	aacagtggcg	420
ggaaaacat	acttgattga	agaggcgctg	actgctgatt	ttgcttcat	caatgcttac	480
attgcagatg	aattcggcaa	tctaactat	gacaaaaccg	cgcgcaatat	gaaccgcgtt	540
atggcaatgg	ccggcaggag	aaccttgcc	gaagctgagc	gtatcggtcc	gatggggag	600
atttctgaag	aaatgattgt	cacacccggg	gttttgggt	aggggggtgt	acgaagcgag	660
ggagtgaagt	ggaaatgggc	ttggagtag				690

<210> 74

<211> 1335

<212> DNA

<213> *Bacillus subtilis*

<400> 74

atgagcagtt	atttgattaa	gccagagctt	agctcgccct	atccggttgt	cagttatgcg	60
aagggttcat	atgttatga	tcagacccga	aaaaaatatc	tcgacggctc	gtcagggtcg	120
gtgacatgt	atatcgccca	cggagttcg	gatgtgactg	agaagctgaa	agaacagctt	180
gatcagggt	ctttgctta	ccgctcacag	tttacgatg	agccccccga	gcaatttagcc	240
gctctcttgg	cacaggagct	gcccgagat	gtgaattgg	cttttttgc	caacagcgga	300
tcagaagcga	tagaaaacgc	tatgaaaatc	gccattcagt	attggcagga	aaaaaaagcaa	360
acacaaaaat	ccatctttt	gtctcgatgg	agcagttacc	acggaataac	tttgggagcg	420
ctttcatgt	ctgggtttta	tgaaaggaga	taccggttca	cccatctcat	tgagcggtat	480
ccagctatct	cagctccaca	tatattatcg	ctgaatcactg	agacggaaga	agactttgtt	540
cagactgcag	ctgatgaact	ggacaccatg	attaaaagaa	tcggaagcc	attcatcgcc	600
ggctttgtgg	ctgagcctat	tattgggtct	gcaggagcag	cgattactcc	gcctccggga	660
tattatgaga	gattaagtga	ggtatgccgc	acacacgatg	tgctttttat	tgcaagatgaa	720
gtgatgacgg	ggcttgggag	aacaggaagg	atgctcgca	cagagcattg	ggataccgta	780
cctgatatt	ctgtactggg	gaagggactc	ggtgccgggt	atgcacctat	tgctgctgccc	840
gtcgatatctg	atttattat	tgaaaccata	aaacaagggt	caggtgtat	tatgagcggt	900
cacacatata	gtgcacatcc	ctattcagcc	aaagctgctc	ttgaagttt	gcgatatgt	960
ttaaaggcact	gcttgatcaa	acaatcagaa	aaaaaggccg	ctgtgctgaa	gaagaagctt	1020
gatgaggccg	catttcaaaag	cggcatata	ggtgagggtc	gcggaaaaagg	actgtattt	1080
ggcatttgc	ttgtggcaga	ccaaaaaaacg	aagaaagtgt	ttccggccaga	gcaggcgata	1140
acccagctt	ttgtcagcga	ggcgaaaaaa	cgcgggctga	ttgtttatcc	ttccaaagct	1200
ggaatagaca	gtggagaagg	agatgtgtc	attattgtcc	ctccttttac	tatttcagac	1260
gtgaaatgg	aagagctt	ctctattttt	tcagaaacag	ttgcagcggt	cgaaaaaac	1320
ttaaaaaaagg	attga					1335

<210> 75

<211> 912

<212> DNA

<213> *Bacillus subtilis*

<400> 75

gtgatcacaa	gagattttt	cttattttt	tccaaaagcg	gttttctcaa	taaaatggcg	60
aggaactggg	gaagtcgggt	agcagcgggt	aaaattatcg	gcgggaatga	ctttaacagt	120
tcaatcccg	ccatttcgaca	gtttaacagc	caaggcttgc	cagttactgt	cgatcatat	180
ggcgagttt	tgaacagcgc	cgaggtcg	cgggagcgta	cggaagagtg	cattcaacc	240
attgcgacca	tcgcggatca	ggagctga	tcacacgtt	ctttaaaaat	gacgtctt	300
ggtttggata	tagatatgga	tttgggtgt	gaaaatatga	caaaaatcct	tcagacgccc	360
gagaaacata	aaatcatgtt	caccattgac	atggaggacg	aagtcatgt	ccagaaaacg	420
cttgcatttt	tcaaagattt	cagaaagaaa	tacgagcatg	tgagcacagt	gtgcgaagcc	480
tatctgtacc	ggacggaaaa	agacattgac	gattggatt	ctttaaaccc	gttccttcgc	540
cttgcataaa	gagcttataa	agaatcagaa	aaagttagctt	ccccggagaa	aagcgatgtc	600

gatgaaaatt	acaaaaaaaaat	catccgaaag	cagctttaa	acggtcacta	tacagcgatt	660
gccacacatg	acgacaaaat	gatcgacttt	acaaagcagc	ttgccaagga	acatggcatt	720
gccaatgaca	agtttgaatt	tcagatgctg	tacggcatgc	ggtcgcaaac	ccagctcagc	780
ctcgtaaaag	aagttataa	catgagagtc	tacctgccc	acggcgagga	ttgtacggc	840
tactttatga	gacgccttgc	agaacgtccg	tcaaacattt	catttgcttt	caaaggaatg	900
acaaagaagt	aa					912

<210> 76
<211> 1548
<212> DNA
<213> *Bacillus subtilis*

<400> 76						
atgacaacac	cttacaaaca	cgagccattc	acaaatttcc	aagatcaaaa	ctacgtggaa	60
gcgtttaaaa	aagcgcttgc	gacagtaagc	gaatatttag	aaaaagacta	tccgcttgc	120
attaacggcg	agagagtgg	aacggaaagcg	aaaatcgttt	caatcaaccc	agctgataaa	180
gaagaagtcg	tcggccgagt	gtcaaaagcg	tctcaagagc	acgctgagca	agcgattcaa	240
gcggctgcaa	aaggatttga	agagtggaga	tacacgtctc	ctgaagagag	agcggctgtc	300
ctgttccgcg	ctgctgccaa	agtccgcaga	agaaaacatg	aatttcgc	tttgcttgc	360
aaagaagcag	gaaaagcatttgc	gaacgaggcg	gatgccata	cggctgaagc	gattgactt	420
atggagttatt	atgcacgcca	aatgatcgaa	ctggaaaag	gcaaaccgg	caacagccgt	480
gaaggcggaga	aaaaccaata	tgtatacacg	ccgactggag	tgacagtctg	tatcccgcct	540
tggaaacttct	tgtttgcgtat	catggcaggc	acaacagtgg	cgccgatcgt	tactggaaac	600
acagtggttc	tgaaacctgc	gagtgcata	cctgttatttgc	cagcaaaaattt	tgttgaggtg	660
cttgaagagt	ccggatttgc	aaaaggcgta	gtcaacttttgc	ttccggaaag	cggatcggaa	720
gttaggcgact	atcttgcgttga	ccatccgaaa	acaaggctta	tcacatttac	gggatcaaga	780
gaagttggta	cgagaatttttgc	cgaacgcgcg	gcpaagggttc	agccggggcca	gcagcatatta	840
aagcgtgtca	tgcgtgaaat	gggcgttaaa	gatacgggttgc	ttgttgcgttgc	ggatgcgac	900
attgaatttag	cggctcaatc	gatctttact	tcagcatttgc	gctttgcggg	acaaaatgc	960
tctgcagggtt	cacgtcgagt	agttcatgaa	aaagtgtatgc	atcaatgtt	agagcgtgtc	1020
attgaaatttac	cggaatcaaa	agtaacagct	aaacctgcata	gtgcagatgt	ttatatggaa	1080
cctgtcatttgc	accaagggttc	ttatgataaa	attatgagct	atattggat	cggaaaaacag	1140
gaaggggcggtt	tagttagcgg	cgttacttgc	gatgatttgc	aaggataactt	catcaaaaccg	1200
acgatcttcg	ctgaccttgc	tccgaaagca	agactcatgc	aggaagaaat	tttcggacct	1260
gtcgttgcatttgc	tttgcgttgc	gtcagacttttgc	gatgaaatgttgc	aaacaatact	tttgcgttgc	1320
gaatatgttgc	tgacaggcgc	ggttatacaca	aacaaccgc	agcacatcgaa	gcgtgcgaaa	1380
caggaatttcc	atgtcgaaaa	cctatacttgc	aaccgcact	gtacaggtgc	tatcgctggc	1440
taccatccgt	ttggcggcttgc	caaaatgtcg	ggaacggatt	caaaacggagg	cgggccggat	1500
tacttggctc	tgcataatgc	agcaaaaaca	atcagtgaaa	tgttctaa		1548

<210> 77
<211> 1398
<212> DNA
<213> *Bacillus subtilis*

<400> 77						
atggagtcattt	ttttcaatag	tttgatttaat	attccaaatgc	atttcatctg	gaaataccata	60
ttttatatttta	taatagggtct	tggatttattt	tttaccatac	gttttgggtt	tatccaaatc	120
cgttattttta	ttgaaatgtt	cagaatagta	ggggagaagc	cggaaggaaa	taaaggtgtt	180
tcatctatgc	aggcatttttgc	tatttcggcc	gcatcccgg	tcggcacagg	gaatttgact	240
ggtgttagcct	tagcaatttgc	gacaggcgga	ccaggcgctg	tattttggat	gtgggttagtg	300
gctgcagtag	gcatggcttgc	aagcttttgc	gaaaatgc	tagcacagct	ttataaaggtt	360
agagacgggg	aggatttccg	cgaggggccg	gcctactata	ttcaaaagggg	tcttggtgcc	420
agatggcttgc	gcatcggttt	tgcaatcttgc	attaccgtct	cattccggctt	gatttttaaac	480
gctgttcaaa	caaataacaat	tgctggagca	ttggatggcg	cattccatgt	aaataaaata	540
gttgttagcc	tagttctggc	ggtttttact	ggttttatca	ttttccggccg	tttaaaaacgt	600
gttgtcgcttgc	tttcacagcttgc	aatttgcgttgc	gttgcgttgc	gcatttatat	tcttgcgttgc	660
ttatgttgcgttgc	tcatcacgaa	tattacggcttgc	ttccctggccg	ttatcgctac	aattgtttaaa	720
aatgctttag	gttttgcgttgc	agtcgtcggc	ggcggaaatag	gcggcatcat	cggtatcggt	780
gcccacacgcg	gacttttttc	aaacgaagca	ggaatgggg	gcgcacaaaa	cgccggctgcg	840

acggctcatg tatcccatcc ggcaaagcaa ggctttattc aaacattagg cgtattttc	900
gatacatttacatgtac gtccacagca tttattttt tgctgtacag tgtaacgcca	960
aaaggcgacg gcatccaagt cacacaggct gctcttaacc atcacattgg aggctggcg	1020
ccgacttca tcgcagtcgc aatgttcttgc tttgcattca gttcagttgt cggcaactat	1080
tattatggcg agacaaacat tgaatttattt aaaaacaagca aaacatggct gaacattac	1140
cgtatcgctg ttattgttat ggttgttat gatctttat caggttcca aatcgtttg	1200
gatatggcg acctctttat gggtatcatg gcgctgatca acttaattgt gattgcgtg	1260
ctgtcaaacg ttgcttacaa agtgtataaa gattacgcga aacagcgtaa gcaaggactt	1320
gatcctgtgt taaaagcgaa aaacatccc gggctgaaaa acgctgaaac atgggaagat	1380
gagaaacaag aagcataa	1398
<210> 78	
<211> 675	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 78	
atgaacacacg ttgattggga attcatgata tcagcggtcc cgactttat tcagggccctt	60
ccgatcacct tggatggc aatagcagct atgatttttgc ccattatcg aggacttatt	120
ctcgactca ttacaaaaaa caaaaattcca gtgcttcattc agctgtcaaa gctgtatata	180
tccttttcc gaggcgtgcc gacacttgcg cagctgttct taatcttata cgggctgccc	240
cagctatttc cagagatgac caaaaatgaca gctctcacag ctgcattcat cgggtaagc	300
ttaaaaaaacg cagcttattt ggcagaaaattt ttccggccg ccctcaattt tttgtatgac	360
gggcagctgg aggcgtgcct gtctgtcggt atgacaaaaat ttcaggcata cagacggatt	420
attttgcgcg aagcgatccg aatatgcgatt cccgcaacgg gcaatacatt tattcgggctc	480
ctgaaaagaaaa cgtcactggc ctttacattt ggggtcatgg agatgttgc ccaagggaaag	540
atgtacgctt cagggaaaccc caaatatttt gagacgtattt tggcggttgc gatcgcttat	600
tgggttctta ccattatcta cagcattttt caggacttgtt ttgaacgtgc catgagcaag	660
ccataccgga ctttag	675
<210> 79	
<211> 795	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 79	
atgaagatgaaaaatggac agtgctggc gttgctgcat tattagcggt gctctcagct	60
tgcggcaatggaaacacgacg cagtaaagag gatgacaatg tgcttcattgt cgggtgcgaca	120
ggacaaaagtt acccatttgc ttataaagaa aacggaaagc tgacaggctt tgacgtggaa	180
gtgatggaaag cagtcgctaa gaaaatttgcg atgaaaactgg actggaaagct gcttgaattc	240
agcgggctga tgggagagct tcaaaccggc aagcttgcaca ccatttccaa ccaggttagct	300
gtgacagacg aacgtaaaggaa aacgtataaac tttacgaaac catacgctt tgcgggaaaca	360
cagattgtcg tcaaaaaaaaaga caatacagac atcaaatttgc tagacgattt aaaaggcaag	420
acagtcgcag ccgttctcggttcaaaaccac gcgaaaaacc ttgaaagccaa agatcctgtat	480
aaaaaaaatca atatcaaaac gtacgaaaca caagagggtt cgcgtaaaggaa tggttgcgtac	540
ggccgtgttag acgcttatgtt caacagccgaa actgtatttgc tgcgcggaaat caagaagacc	600
ggtttgcctat taaagcttgc aggagatccg attgtttagt aacaggttgc attccctattt	660
gccaaggacg atgcgcacgca caagctccgc aaaaaagtca ataaggccctt agatgaatttgc	720
cgtaaagacg gaacactgaa aaaactctt gaaaaataact ttaatgaaga tatcacagta	780
gaacagaagc attaa	795
<210> 80	
<211> 498	
<212> DNA	
<213> <i>Bacillus subtilis</i>	
<400> 80	
atgaaggccac gataccgcct tgcagttgaa cgtgatgccc aacagcttctt cggactgaca	60
ttgcgggctt atgaaccgat tcgaaaagctc ggcattcgtt ttgctgtgc tcatgcggat	120
ttggattttgg tgctgaaaaaa tattcgggaa aatgcttgc acgtcatgga agaagacggg	180

cgatcatcg	cgaccatcac	cttgagaatg	cttggggaa	aacagccggg	accgtatggc	240
gttccgcata	tctgggtt	tgctgtggac	cccgacacccg	gtaaaaaagg	aatcggtaca	300
aagctcttc	aatggctgga	ggaaacaatc	cttcgcata	cgttaaagg	tccgtttgtt	360
tcactcgaa	cagcgataa	gcatccgtgg	ctgattgaga	tgtacgaacg	aaaaggatat	420
gtccgctcag	gtgaacaaga	ccttggaaaa	gggcatatca	cagctatat	aaaaaaacaa	480
ttggacatg	atctataa					498
<210> 81						
<211> 1326						
<212> DNA						
<213> <i>Bacillus subtilis</i>						
<400> 81						
atgacaagca	aaaagaaaaca	aatcaaatta	ggggtatttt	tagcaggtac	aggccatcat	60
gttgcgtctt	ggcggcaccc	ggacgcgcgg	ttagatgcga	gcatgaattt	ggattatttt	120
aaagagcttgc	cgaaaaacagc	ggagcgaggc	aagctggata	tgctgtttt	agcggacagc	180
ctttcaatttgc	acagcaaattc	acatccaaat	gtattaaacaa	ggtttgagcc	attcaccctg	240
ctctctgttt	tggcgcagg	cacatcaaaa	atcggactga	cagcaacagc	ctccactaca	300
tcacagcgagc	cattccatat	tgccagacag	tttgcgtcat	tggatcatct	gtccaaatggc	360
cgtgcggat	ggaacgtcgt	cacttcatct	attgaatcaa	cagcgtgaa	tttcagcggt	420
aaaaagcacc	ttgaacacca	tttgcgtat	cagcgggcag	aggaatttgc	cgagatttgc	480
aaggggcttgc	gggatttcatg	ggaagaggac	gcctttatcc	gtaataaaga	aacgggtgaa	540
ttctttgaca	aagaaaaaat	gcatgagctg	aaccacaaag	gagaatattt	ctcggttcgc	600
ggacctctaa	acgtttcaag	aaccccccag	ggccagccgg	tcattatcca	ggcaggatca	660
tcaggagacg	gaaaagcgct	ggctgcctaa	acagccgaag	tgatcttcac	agcacaaaaac	720
cacctggaaat	cagctcaaga	attttatcaa	tccattaaag	aacaggctgc	ggaattcgga	780
cgtgatccag	aaaaaaattgc	cattatgcgg	ggtattttcc	caatcattgc	cgatacagaa	840
gaagcagcgc	aagccaaata	caaggagctc	caagatctga	ttatccatc	tgtcggctcg	900
caaattctcc	aaaattactt	aggcggaaatt	gatttgcgg	catatccgt	tgatggggcg	960
ctgcgcgaagc	ttgacgcccga	agcttccat	gcccgtgaaga	gccgctcaa	gcttgcgtcg	1020
gagatggctg	aacgtgacaa	tatgacgata	cgagagctt	acaaataacgt	tgcaggctcc	1080
agaggccacc	atatctcgt	cggcacgccc	gagcagctcg	ccgacaagat	gcaggaatgg	1140
gtggatacga	aagcgtgtga	cgggtttaac	atcatgcctc	cgcttcttcc	agaaggatt	1200
gaagtgtttg	ttgatcaagt	ggttccgatt	ttacaggagc	gcggcgtgtt	cagaaaaagaa	1260
tatgaaggca	caacattacg	agagcacttc	ggtttgaaaa	agccggtaaa	ccgctatgca	1320
aagtaa						1326